

The Adoption and Effectiveness of Quality Management Practices in Bangladesh

By
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degree of Doctor of Philosophy in the Faculty of Business and Economics

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STATEMENT

I hereby certify that this thesis is the result of my own research and that it has not, nor has any part of it, been submitted for a higher degree to any other university or institution. The sources of information used and the extent to which the work of others has been utilised, are acknowledged in the thesis. The thesis has also received the approval of the Ethics Review Committee (Human Research) at Macquarie University.

Farhana Ferdousi

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LIST OF ACRONYMS

BGMEA-Bangladesh Garment Manufacturers and Exporters Association

BKMEA-Bangladesh Knit Manufacturers and Exporters Association

ESs-Expert Systems

ILO-International Labour Organisation

IT-Information Technology

MFA-Multi-Fibre Arrangement

NIS-New Institutional Sociology

RMG-Ready-Made Garments

QC-Quality Control

QCs-Quality Circles

QM- Quality Management

SPC-Statistical Process Control

SQC-Statistical Quality Control

TQC-Total Quality Control

TPM-Total Productive Maintenance

TQM-Total Quality Management

WTO-World Trade Organisation

Abstract

Globalisation, advances in technologies, and the impact of liberalisation have led to significant increases in competition, and resulted in enhanced use of Quality Management (QM) practices in order to remain competitive. Accordingly, this thesis examines the adoption and effectiveness of QM practices in the context of a developing economy. Specifically, the thesis examines the contingency factors, including institutional pressures and organisational related factors that affect the adoption of QM, including Total Quality Management (TQM). The thesis also examines the association between specific organisational factors and the effectiveness of QM practices, assessed in respect to competitive advantage, and the mediating role of Kaynak's (2003) core TQM practices and quality performance in this relationship. Data was collected through interviews with 16 managers of a garment organisation in Bangladesh and a survey of 673 managers in Bangladeshi garment organisations.

The thesis employs the "thesis by publication" format and includes three academic papers. Paper One uses DiMaggio and Powell's (1983) notion of institutional pressures to examine the influence of institutional pressures on the adoption of QM in a developing economy, Bangladesh. The findings indicate that the adoption of QM practices (Quality Control (QC), Quality Control Circles (QCCs), on-line quality checking, Quality Assurance (QA), Just-in Time (JIT), and TQM) was influenced by three types of institutional pressures including coercive, mimetic, and normative pressures. Specifically, it was found that the prevalence of coercive pressures, in the

form of directives from top management that arose in response to changes in retailers' requirement and increased competition following the removal of the Multi-Fiber Arrangement (MFA), lead to the adoption of QM practices. Moreover, the increased competition and the resultant uncertainty were identified as sources of mimetic pressures, while normative pressures were exerted through the influence of garment associations, top management and training.

Paper Two focuses on the association between organisational related factors (information technology (IT), intensity of market competition, Expert Systems (ESs) and supplier evaluation programmes) and the adoption of TQM, assessed in respect to the extent of use of Kaynak's (2003) core TQM practices (quality data and reporting, supplier quality management, product/service design, process management). In addition, the study also investigated the effectiveness of TQM practices by examining the influence of these core TQM practices on competitive advantage. The findings reveal a significant association between three organisational related factors (intensity of market competition, IT, and ESs) and the extent of adoption of TQM. Moreover, the results show the association of all four core TQM practices with each other, with two of these practices (supplier quality management and product/service design) found to be directly associated with competitive advantage. The findings provide organisations in developing economies with an insight into the use and importance of TQM practices.

Paper Three examines the association between six organisational factors (top management support, employee involvement, employee empowerment, reward and recognition, customer focus, and training) and quality performance, and quality

performance with competitive advantage. Accordingly, the thesis examines the mediating role of quality performance in the association between organisational factors and competitive advantage. The findings reveal a significant and positive association between three organisational factors (top management support, employee involvement and reward and recognition) and quality performance, and quality performance with competitive advantage. In addition, the results also indicate that three organisational factors (top management support, employee involvement, and reward and recognition) were significantly associated with competitive advantage through quality performance. Moreover, a direct association between three organisational factors (top management support, employee involvement, and employee empowerment) with competitive advantage was also found. These findings highlight the important role of organisational factors in achieving competitive advantage.

The thesis contributes to the quality management literature by examining the adoption and effectiveness of QM in the context of a developing economy. The observed association between contingency factors with the adoption of QM, including TQM, provides managers with an insight into how to facilitate the enhancement of quality initiatives. In particular, the results relating to the influence of the three institutional pressures on the adoption of QM indicates the need for managers to observe the nature of these pressures and to adapt the QM practices in response to such pressures. In addition, the findings relating to the association of specific organisational related factors with the adoption of TQM, indicate that managers should invest in adopting technologies such as IT and ESs, and understand the effect of factors including supplier evaluation programmes and market competition which are conducive to TQM implementation. The study also provides an insight into how to enhance the

effectiveness of QM practices. The significant role of the extent of adoption of TQM, individual core TQM practices (quality data and reporting, supplier quality management, product/service design, process management) and quality performance in enhancing competitive advantage, suggest that managers should make greater use of TQM practices, in particular the TQM core practices and improve quality performance through improving product/service quality and reducing defects, in order to enhance their competitive advantage. The direct impact of organisational factors (top management support, employee involvement, and employee empowerment) on competitive advantage and the indirect impact of organisational related factors (supplier evaluation programmes and ESs) and organisational factors (top management support, employee involvement, and reward and recognition) on competitive advantage through core TQM practices and quality performance respectively, highlight the importance of enhancing such organisational factors in order to contribute to more effective QM practices.

CHAPTER ONE

INTRODUCTION

1.1 Background

Developing economies and organisations have experienced significant changes in their functioning in recent times due to the impact of deregulation, advances in information systems and technologies, and globalisation (Cull and Peria, 2007; Kahveci and Sayilgan, 2006). The associated increase in competition, changes in global markets, changes in import-export policies and increased customer consciousness have resulted in such organisations focusing on the use of Quality Management (QM) practices in order to survive in the increasingly competitive market (Wanderi et al., 2015; Lakhe and Mohanty, 1994).

QM is used to integrate all functions of an organisation to satisfy customers and facilitate improvements in products and services (Solomon and Hogan, 2012). QM practices facilitate the achievement of objectives relating to both customer satisfaction and continuous improvement (Schuurman, 1997). While QM practices have evolved from simple inspection of goods and correcting quality problems to developing Statistical Quality Control (SQC), more recently QM practices have evolved into Total Quality Management (TQM), a management philosophy for improving products or services on a continuous basis to satisfy customers (Dubey and Gunasekaran, 2014).

There have been two main streams of research in respect to QM, one focusing on the adoption of QM and the second examines the effectiveness of QM. The majority of this

research has focused on developed economies (Jaca and Psomas, 2015; Haar and Spell, 2008; Sila, 2007; Witcher, 1994; Taylor and Wright, 2003; Gilson et al., 2002; Ismail and Hashmi, 1999; Edwards et al., 1998; Mohrman et al., 1995) with few studies focusing on developing economies (Al-Omiri, 2012; Salehedin, 2009; Turner et al., 2000). It is important to conduct research in relation to the use and effectiveness of QM in developing economies as they differ from developed economies in terms of their political, economic, social and cultural environments (Djerdjour and Patel, 2000). In particular, while developing economies have adopted various QM practices such as Total Quality Control (TQC) and Quality Circles (QCs) (Djerdjour and Patel, 2000), they are experiencing difficulties developing these practices due to environmental uncertainties, the lack of infrastructure, and the insufficient availability of resources, which are all considered to impact on the success of quality initiatives (Gosen et al., 2005).

Given the concerns regarding the usefulness of QM practices and the limited studies examining such practices, this study aims to contribute to the literature examining the adoption and effectiveness of QM in a developing economy. First, in respect to the adoption of QM, the study aims to contribute to the literature examining the influence of contingency factors including institutional pressures and organisational related factors on the adoption of QM. While previous empirical studies have examined QM adoption from an institutional perspective, such studies have mainly examined the influence of mimetic and normative pressures on the adoption of TQM (Younget al., 2001; Westphal et al., 1997). Accordingly, using DiMaggio and Powell's (1983) notion of institutional pressures, Paper One uses a case study to examine the role of all three institutional pressures (coercive, mimetic and normative) on the use of QM practices in

a developing economy. The focus on the influence of these pressures in a developing economy is considered appropriate since they face more pressure in terms of quota allocations, compliance issues, and quality issues relating to various transnational organisations including the World Trade Organisation (WTO) and the International Labour Organisation (ILO). Therefore, in order to understand the factors influencing changes in QM practices and the specific pressures that enact changes in QM practices, this study examines the influence of all three of DiMaggio and Powell's (1983) institutional pressures on the adoption of QM.

Paper Two aims to contribute to the literature by providing a broader insight into the association between organisational related factors and the adoption of TQM. In particular, while previous studies have examined the association of various organisational related factors including firm size, information technology, market competition, culture and organisational structure (Al-Omiri, 2012; Duh et al., 2012; Sila, 2007) on the adoption of TQM, these studies only examine the effect of such factors on the overall adoption of TQM with respondents simply indicating whether they were using TQM or not. Hence, this study provides a more detailed insight into the use of QM, incorporating Kaynak's (2003) core TQM practices model to operationalise TQM adoption as the combined use of Kaynak's (2003) four core TQM practices: quality data and reporting, supplier quality management, product/service design, and process management. Specifically, using Kaynak's (2003) model, Paper Two contributes to the literature by examining the association between specific organisational related factors (information technology (IT), extent of market competition, Expert Systems (ESs) and supplier evaluation programmes) and the adoption of TQM, the association of these factors with each of the core TQM practices

and the association of the four core TQM practices with each other. Moreover, while previous studies which have utilised Kaynak's (2003) model have focused on developed economies, this study contributes to the literature by providing a broader insight into the use of these practices in the context of a developing economy.

Secondly, in respect to the effectiveness of QM, given the majority of studies have examined QM effectiveness in terms of organisational performance (Basu and Bholap, 2016; Zehir et al., 2012; Corredor and Goni, 2011; Fotopolous and Psomas, 2010; Gadenne and Sharma, 2009; Kumar et al., 2009; Pinho, 2008; Vijande and Gonzale, 2007; Prajogo and Sohal, 2006; Feng et al., 2006; Demirbag et al., 2006; Rahman and Bullock, 2005; Prajogo, 2005; Seth and Tripathi, 2005; Chong and Rundus, 2004; Prajogo and Brown, 2004; Fuentes et al., 2004; Prajogo and Sohal, 2003; Watson et al., 2003; Montes et al., 2003; Kaynak, 2003; Rahman, 2001; Samson and Terziovski, 1999; Terziovski and Samson, 1999), this study aims to further contribute to the limited number of studies which have examined QM effectiveness in terms of competitive advantage (Shenawy et al., 2007; Douglas and Judge, 2001; Reed et al., 2000; Flynn et al., 1995; Powell, 1995). In addition, while previous studies have examined the direct association between organisational factors and competitive advantage (Shenawy et al., 2007; Powell, 1995), this study contributes to the literature by examining both the direct and indirect effect of organisational factors on competitive advantage. Specifically, this study contributes to the literature by examining the mediating role of both Kaynak's core TQM practices and quality performance in the association between organisational related factors and competitive advantage. Specifically, Paper Two and Three examine the effect of organisational related factors

on competitive advantage through Kaynak's core TQM practices and quality performance respectively.

Hence, this study addresses the following research objectives:

1. To provide a more detailed insight into the adoption and effectiveness of QM in a developing economy.
2. To examine how the adoption of QM is influenced by institutional pressures.
3. To examine the association between organisational related factors with the adoption of TQM and its effectiveness.
4. To examine the mediating role of quality performance on the association between organisational factors and QM effectiveness.

The remainder of this chapter is organised as follows. Section 1.2 presents the motivation of the thesis. Section 1.3 then discusses the methodology. Sections 1.4, 1.5 and 1.6 provide details of each of the three papers, and Section 1.7 provides the overall structure of the remainder of the thesis.

1.2 Motivation

There are four motivations of this study which are discussed in the following sections:

1. To provide an insight into the adoption and effectiveness of quality management from a developing economy perspective.
2. To examine the adoption of quality management from an institutional perspective.
3. To provide a more detailed insight into the use of quality management practices.
4. To provide a more detailed examination of the effectiveness of quality management.

1.2.1 To provide an insight into the adoption and effectiveness of quality management from a developing economy perspective

The adoption and effectiveness of QM have been examined in many studies (Basu and Bholap, 2016; Rahman and Masud, 2011; Abusa, 2011; Zinn, 2009; Taylor and Wright, 2003; Witcher, 2003; Gilson et al., 2002; Ismail and Hashmi, 1999) with most of these studies focusing on developed economies. However, only a few studies (Al-Omiri, 2012; Salehedin, 2009; Turner et al., 2000) have examined QM adoption and effectiveness in the context of developing economies. Therefore, this study is motivated to provide an insight into the adoption and effectiveness of QM in the context of a developing economy, Bangladesh. The focus on developing economies is considered to be important due to the observed differences from developed economies in terms of the standard of living, the level of labour productivity, the degree of market failure and the significant import and export growth rate (Mersha, 1997). Developing economies are generally growing faster than developed economies, and there is a vast increase in trade and capital flows within developing economies (Citigroup, 2010). In respect to quality initiatives, the adoption and effectiveness of QM in developing economies differs from developed economies due to the tools used to adopt QM (Djerdjour and Patel, 2000). Specifically, while developed economies are more advanced in using sophisticated tools in quality improvement programs (Djerdjour and Patel, 2000), developing economies have difficulties with quality standards, inadequate testing facilities, and insufficient and considerably less investment in technology and R&D (Lakhe and Mohanty, 1994). Moreover, the lack of education, training and commitment impose severe constraints on quality improvement initiatives in developing economies (Gosen et al., 2005; Lakhe and Mohanty, 1994). The increased competition, pressures from buyers and increased customer consciousness in respect to quality aspects, and changes in global markets and

import-export policies have led developing economies to adopt QM practices to remain competitive (Lakhe and Mohanty, 1994). Accordingly, this study aims to provide an insight into the adoption and effectiveness of QM in a developing economy, Bangladesh.

Bangladesh was chosen as the research setting due to its highly competitive environment and increasing interest in quality improvement. In particular, organisations operating in Bangladesh are facing high pressure from both international and national competitors, and challenges in terms of price, competitiveness, and delivery times. The study focuses on the garment industry due to its important contribution to the country's economy and its increased focus on quality improvement. In addition, the recent Tazreen tragedy in 2012 and Rana Plaza collapse in 2013 have placed pressure on this industry to improve compliance with work place safety. Therefore, this study is motivated to examine the adoption and effectiveness of QM in the garment industry of a developing economy, Bangladesh.

1.2.2 To examine the adoption of quality management from an institutional perspective

In line with institutional theory, an organisation's QM practices are influenced by the pressures associated with changes in the institutional environment, including changes attributable to the government, regulatory bodies, accredited companies or customers/suppliers. While, DiMaggio and Powell (1983) proposed three institutional pressures (coercive, mimetic and normative pressures), only a few studies have examined the influence of these institutional pressures on the adoption of TQM (Young et al., 2001; Westphal et al., 1997), with such studies conducted in a developed

economy and only focusing on the impact of two pressures, mimetic and normative pressures (Young et al., 2001; Westphal et al., 1997). Accordingly, this study is motivated to examine the influence of all three pressures (coercive, mimetic and normative) in the context of a developing economy. In particular, the focus on coercive pressures is considered important as such pressures are more prevalent in developing economy organisations, in particular garment organisations, due to pressures including quota allocations, and compliance and quality issues from various transnational organisations such as the World Trade Organisation (WTO), International Labour Organisation (ILO), and donor agencies. In addition, while previous studies have only focused on the influence of these factors on TQM, this study is motivated to contribute to the literature by providing a comprehensive insight into the influence of all three pressures namely coercive, mimetic and normative pressures on the use of QM practices in a developing economy.

1.2.3 To provide a more detailed insight into the use of quality management practices

A large number of studies have examined how contingency factors influence the adoption of QM, specifically TQM. While previous studies have mainly focused on the effect of such factors on the overall adoption of TQM (Wanderi et al., 2015; Al-Omiri, 2012; Duh et al., 2012; Sila, 2007), this study seeks to provide a detailed insight into these relationships by operationalising TQM adoption in respect to the extent of use of Kaynak's (2003) four core TQM practices model. Specifically, Kaynak (2003) maintains that the extent of adoption of TQM in any organisation is contingent on the degree of use of four core TQM practices, namely quality data and reporting, supplier quality management, product/service design, and process management. Accordingly, this study assesses TQM adoption as the combined use of Kaynak's (2003) four core

TQM practices, examining the association between organisational related factors (IT, intensity of market competition, ESs and supplier evaluation programmes) with both the adoption of TQM, and each of the core TQM practices.

1.2.4 To provide a more detailed examination of the effectiveness of quality management

Previous studies examining QM effectiveness have mainly measured effectiveness in terms of organisational performance (Basu and Bholap, 2016; Mahmud and Hilmi, 2014; Zehir et al., 2012; Corredor and Goni, 2011; Fotopolous and Psomas, 2010; Gadenne and Sharma, 2009; Kumar et al., 2009; Pinho, 2008; Vijande and Gonzale, 2007; Prajogo and Sohal, 2006; Feng et al., 2006; Demirbag et al., 2006; Rahman and Bullock, 2005; Prajogo, 2005; Seth and Tripathi, 2005; Chong and Rundus, 2004; Prajogo and Brown, 2004; Fuentes et al., 2004; Prajogo and Sohal, 2003; Watson et al., 2003; Montes et al., 2003; Kaynak, 2003; Rahman, 2001; Samson and Terziovski, 1999; Terziovski and Samson, 1999; Choi and Eboch, 1997) with only a limited number of studies examining effectiveness in respect to competitive advantage (Shenawy et al., 2007; Douglas and Judge, 2001; Tena et al., 2001; Reed et al., 2000; Powell, 1995). In addition, of those studies that have examined QM effectiveness in terms of competitive advantage, only a few studies have focused on the effect of organisational factors on competitive advantage. Furthermore, these studies have mainly examined the direct association between organisational factors and competitive advantage (Shenawy et al., 2007; Powell, 1995), and have not considered the mediating role of specific factors on such associations. Therefore, this study aims to contribute to the literature by providing a more detailed insight into the effectiveness of quality management. Specifically, using Kaynak's (2003) four core TQM practices model, the

study examines the association between specific organisational related factors (IT, the extent of market competition, ESs and supplier evaluation programmes) and competitive advantage through Kaynak's four core TQM practices. In addition, drawing on Hamilton and Chervany's (1981) view, this study contributes to the literature by examining the mediating role of quality performance in the association between organisational factors and competitive advantage.

1.3 Method

Using the thesis by publication approach, the study utilises both the qualitative and quantitative research methods. A case study is used in Paper One to provide a deeper insight into the influence of institutional pressures, in particular coercive, mimetic and normative forces on QM adoption. In Paper Two a survey was used to provide an empirical insight into the association between specific organisational related factors, the extent of TQM adoption and competitive advantage. The survey was also used for Paper Three to examine the mediating role of quality performance in the association between organisational factors and competitive advantage.

A sampling frame was developed using lists obtained from the Bangladesh Garment Manufacturers and Exporters Association (BGMEA) and Bangladesh Knit Manufacturers and Exporters Association (BKMEA). The study sought to obtain data from a sample of 673 business units within garment organisations, with a total of 150 (28%) usable questionnaires returned.

1.4 Paper One: The institutional pressures affecting the use of quality management in Bangladesh

This paper uses institutional theory, in particular DiMaggio and Powell's (1983) notion of institutional pressures to examine the influence of institutional pressures, namely coercive, mimetic and normative pressures on the adoption of QM practices in a developing economy. The results reveal that the adoption of QM practices is influenced by all three institutional pressures. The coercive pressures mainly consisted of directives from top management that arose in response to the changes in retailers' requirement and increased competition following the removal of the Multi-Fibre Arrangement (MFA) and pressures from retailers. The mimetic pressures were the result of high competition and the resultant uncertainty within the market. The influence of professional garment associations, top management support and training were the key sources of normative pressures. The study contributes to the management accounting literature through providing knowledge about changes in the QM practices in a garment organisation within a developing economy.

1.5 Paper Two: The association between organisational related factors, the adoption of TQM and competitive advantage

This paper examines the association between four organisational related factors (IT, intensity of market competition, ESs and supplier evaluation programmes) and the adoption of TQM. Kaynak's (2003) core TQM practices (quality data and reporting, supplier quality management, product/service design, process management) model is used to operationalise the adoption of TQM. The study also examines the association between these four core TQM practices with each other and with competitive advantage. Three organisational related factors (IT, intensity of market competition and

ESs) were found to be positively associated with the adoption of TQM. In addition, while all four TQM practices were found to be associated with each other, two of these factors (supplier quality management and product/service design) exhibited direct associations with competitive advantage. The findings assist organisations in developing economies by providing an important insight into the use and importance of TQM practices.

1.6 Paper Three: The effectiveness of quality management in Bangladesh

This paper applies Hamilton and Chervany's (1981) view to examine the association between specific organisational related factors with competitive advantage. Specifically, given Hamilton and Chervany (1981) argue that the effect of management initiatives on organisational performance is indirect via improvements in organisational processes, this study argues that the effect of six organisational factors (top management support, employee involvement, employee empowerment, reward and recognition, customer focus and training) on competitive advantage is influenced by quality performance. Therefore, this study examines the mediating role of quality performance in the association between organisational factors and QM effectiveness operationalised as competitive advantage. The findings suggest that three specific organisational factors (top management support, employee involvement and reward and recognition) were significantly associated with quality performance, and quality performance was significantly associated with competitive advantage. In addition, three organisational factors (top management support, employee involvement, employee empowerment) were found to be directly associated with competitive advantage. The findings provide broad and important insights for managers of developing economies to develop an understanding regarding the critical role of process improvement in

achieving competitive advantage.

1.7 Organisation of the thesis

The remainder of the thesis is organised as follows. Chapter Two provides a review of the QM literature. Chapters Three, Four, and Five contain the three self-contained papers, with separate references, appendices, tables, and figures presented at the end of each paper. In particular, Chapter three (Paper One) examines the influence of institutional pressures on the adoption of QM practices. Chapter Four (Paper Two) then examines the association between organisational related factors, the adoption of TQM and competitive advantage, while Chapter Five (Paper Three) examines the effectiveness of quality management in a developing economy. Chapter Six summarises the findings of each of the three papers and provides an overall conclusion. The limitations and suggestions for future studies are also discussed in Chapter Six. A separate reference list is provided at the end of the thesis. The appendices at the end of the thesis provide the survey questionnaire (Appendix A), interview guides (Appendices B and C), consent letters (Appendices D and E), and ethics approvals (Appendices F and G).

CHAPTER TWO

LITERATURE REVIEW

This chapter provides a broad overview of the literature concerning Quality Management (QM) practices, including Total Quality Management (TQM). The chapter provides an insight into the nature of QM practices and reviews the research examining the adoption and effectiveness of such practices. Accordingly, Section 2.1 discusses the nature of QM practices, including TQM, with Section 2.1.1 providing a discussion of Kaynak's (2003) core TQM practices. Section 2.2 then reviews the QM research, with Sections 2.2.1 and 2.2.2 providing a summary of those studies examining the extent of adoption of QM, and the factors that affect the extent of adoption of QM respectively. Section 2.2.3 then provides an insight into the literature examining the effectiveness of QM. Finally, Section 2.3 provides a summary of the chapter and details regarding the structure of the remainder of the thesis.

2.1 Quality management

Flynn et al. (1995, p.342) define QM as “an integrated approach to achieving and sustaining high quality outputs”. QM practices consist of the critical activities that organisations use to direct, control, and manage quality directly or indirectly, which subsequently lead to improved quality performance and competitive advantage (Flynn et al., 1995). QM is a critical component in both the design and manufacturing of

products (Flynn et al., 1995) and is considered to be a valuable tool and a vital strategic force which enables organisations to achieve superior performance (Lee, 2002).QM includes a number of different practices, including Statistical Quality Control (SQC), Quality Circles (QCs) and TQM, with early QM research focusing on the use of these practices. While QM initially simply involved the inspection of finished goods and correcting quality problems, it subsequently evolved into SQC, a system of verifying and maintaining a desired level of quality in an existing product by using statistical and analytical tools to control process variations. SQC commenced in Japan for the purpose of providing an educational program to promote quality control in Japanese organisations (Lakhe and Mohanti, 1994). SQC has subsequently been used extensively in manufacturing processes (Modarress and Ansari, 1989) with Ishikawa (1985) suggesting that implementation requires the involvement of top management and an emphasis on training and education.

In addition to SQC, given the important role of management and employee-management relationships in achieving higher quality, UK and US organisations introduced Quality Circles (QCs).QCs represent a participatory management technique whereby employees are involved in solving quality related problems in their jobs. In particular, organisations focus on improving all kinds of activities within the organisations to raise the quality of manufactured goods (Hill, 1991).

However, the increasingly complex and dynamic environment, and advances in technologies, resources and customer expectations resulted in the development of a more complex QM practice, TQM. TQM emerged at the end of the 1980's with

Donauer et al. (2015) maintaining that TQM tools and techniques are essential to improve quality. TQM is a management approach concentrating on continuously improving the competitiveness of each part of the organisation (Arumugam et al., 2008) and sustaining quality products and processes through involving management, employees, suppliers and customers, in order to meet customer expectations (Avella and Vazquez-Bustelo, 2005). It is a quality improvement approach (Hafeez et al., 2006) that strives to manage quality, and develop a quality strategy (Kanji and Wallace, 2000) and framework for its implementation (Chin and Pun, 2002). Hung et al. (2011, p.217) refer to TQM as “an integrated management philosophy and set of practices that includes incremental and radical change in business processes”, while Kaynak (2003) defines TQM as “a holistic management philosophy that strives for continuous improvement in all functions of an organisation, and it can be achieved only if the total quality concept is utilized from the acquisition of resources to customer service after the sale” (Kaynak, 2003, p.406).

A review of the literature reveals that TQM consists of several elements, including management leadership, the role of a quality department, training, employee relations, quality data and reporting, supplier quality management, product/service design, process management, strategic planning, customer focus, information technology and analysis, people management, recognition and continuous improvement (Zehir et al., 2012; Kim et al., 2012; Jalahma and Galleary, 2010). It utilises techniques that improve product quality and processes, thereby facilitating organisations’ improvements in competitive advantage (Talavera, 2005). TQM produces a wide range of benefits including improved internal communication, better problem-solving, greater employee commitment and motivation, stronger relationships with suppliers, better understanding

of customers' needs, improved customer satisfaction, fewer errors and reduced waste, productivity improvements, cost reductions, minimisation of defects, and improvements in quality and overall performance (Haar and Spell, 2008; Sharma and Kodali, 2008; Abas and Yaacob, 2006). While previous studies have examined the overall adoption of TQM by asking respondents whether they use TQM or not, this study assesses TQM adoption as the combined use of Kaynak's (2003) four core TQM practices. Moreover, while previous studies which have utilised Kaynak's (2003) model have focused on developed economies, this study contributes to the literature by providing a broader insight into the use of these practices in the context of a developing economy. The nature of each of the four core practices discussed in the next subsection.

2.1.1 Kaynak's (2003) core TQM practices

Kaynak (2003) maintains that TQM consists of four core practices, namely quality data and reporting, supplier quality management, product/service design, and process management with an organisation's extent of TQM adoption indicated by the extent of use of these four core practices. Quality data and reporting involves collecting and analysing quality information (Kaynak and Hartley, 2008). Quality data and reporting facilitates the evaluation and monitoring of supplier performance through maintaining records of material quality, defect rates in parts produced, and supplier responsiveness (Baird et al., 2011). Moreover, quality data and reporting assists in finding errors by using statistical control charts to develop data about the cost of poor quality, such as rework, scrap, and warranty costs. Quality data and reporting also provides information on areas that require correction (Ho et al., 1999; Choi and Eboch, 1997).

Supplier quality management refers to a set of supplier related QM practices that facilitate improvements in suppliers' product and service quality (Zhang et al., 2000). Supplier quality management is directed at maintaining a close and cooperative relationship with a small number of suppliers (Kaynak, 2003). Song and Lee (2012) stress that a small number of suppliers are more willing to collaborate with buyers with enhanced commitment to quality, thereby improving buyers' product quality.

Product/service design is one of the most critical stages of the manufacturing process as it involves people from the entire process, including customers for product specifications, the production team for product manufacturability, marketing managers to ensure the product has a market, and purchasing managers to ensure the parts are available for production (Stalk and Hout, 1990; Gunn, 1987; Cole, 1981). Product/service design focuses on product and process design specifications, and the testing and inspection of products before they enter the market (Gotzamani and Tsiotras, 2001). It can be facilitated by involving customers in the product development process, thereby enhancing manufacturability. Product/service design translates customer expectations into quality with an effective product design, facilitating improvements in product quality and enhancing competitive advantage (Juran and Gryna, 1993).

Process management refers to the “development, standardisation and documentation of those processes that directly affect quality” (Gotzamani and Tsiotras, 2001, p.1334). Process management means a set of methodological and behavioural practices that assist in controlling and improving the processes to produce products and services (Juran and Gryna, 1993). Moreover, process management facilitates the manufacturing process through minimising breakdowns and workforce variability (Flynn et al., 1995).

This study operationalises TQM adoption in respect to the extent of use of Kaynak's (2003) four core TQM practices model. This study assesses TQM adoption as the combined use of Kaynak's (2003) four core TQM practices. While previous studies which have utilised Kaynak's (2003) model have focused on developed economies, this study contributes to the literature by providing a broader insight into the use of these practices in the context of a developing economy.

2.2 Quality management research

A review of the literature on QM reveals that there are two main streams of research in this area. First, there are the studies on the extent of adoption of QM practices and the contingency studies examining the factors that influence the extent of adoption of QM. Secondly, there are the studies which examine the effectiveness of QM. Section 2.2.1 provides an overview of the studies examining the extent of adoption of QM in both developed and developing economies, while Section 2.2.2 discusses the studies which have examined the factors that influence the extent of adoption of QM. Section 2.2.3 then provides a discussion of the studies which have examined the effectiveness of QM.

2.2.1 The adoption of quality management practices

The majority of studies that have examined the extent of adoption of QM, including TQM, have focused on developed economies. There are mixed findings regarding the adoption of QM. For instance, Gilson et al. (2002) and Haar and Spell (2008) reported TQM adoption rates of 61% and 33% respectively in New Zealand, while Ismail and

Hashmi (1999) and Edwards et al. (1998) reported varying adoption rates of TQM in the UK. In particular, Edwards et al. (1998) reported a 75% adoption rate for TQM by UK organisations, while Ismail and Hashmi (1999) reported a TQM adoption rate of 19% in the UK, stressing that organisations should maintain and sustain TQM continuously in order to perform better. Witcher (1994) reported a TQM adoption rate of 80% within the surveyed Scottish organisations. Alternatively, Taylor and Wright (2003) conducted a longitudinal study on UK organisations and found that 38% of surveyed organisations had discontinued their TQM initiatives, while 38% of organisations were found to achieve success with such initiatives. The main reason for discontinuation was a lack of top management commitment.

The review of the literature revealed a relatively high TQM adoption rate in the US. For instance, Mohrman et al. (1995) found that 83% of the surveyed US organisations had a positive experience with TQM, while 79% planned to 'increase or greatly increase' their TQM initiatives within the next 3 years. A later study by Sila (2007) also found that 70% of the US organisations that had implemented TQM stated that their program was successful, whereas only 14% indicated that it was unsuccessful.

However, in examining the adoption of QM, only a few studies have focused on the adoption of QM in the context of a developing economy (Al-Omiri, 2012; Salehedin, 2009; Turner et al., 2000). Salehedin (2009) for instance, reported a TQM adoption rate of 75.9% by Egyptian organisations (including engineering, electronics, pharmaceuticals and chemical organisations), identifying the competitive nature of these organisations as the main reason for adopting TQM. Turner et al. (2000) found that 36% of African organisations adopted the ISO 9000 quality assurance standard,

stressing the desire to improve customer service, quality improvement and operational efficiency were the most critical reasons for adopting certification.

Given the limited studies examining the adoption of QM based on developing economies, this study is motivated to examine the extent of adoption of QM in the context of a developing economy. The focus on developing economies is deemed to be important due to its unique environmental conditions in terms of the political, legal, cultural, and the economic environment (Djerdjour and Patel, 2000) and the increased concern in respect to improving quality. While developed economies are advanced in using QM practices, developing economies face problems in using QM practices, such as Total Quality Control (TQC) and QCs (Djerdjour and Patel, 2000) due to their high environmental uncertainty, a lack of infrastructure, and the scarcity of resources (Gosen et al., 2005). Accordingly, Paper One and Two of this thesis examine the adoption of QM, including TQM in the context of a developing economy. In addition, given the mixed findings in regard to the extent of adoption of QM, the study will also focus on the factors that influence the adoption of QM. Specifically, Paper One will examine the association of three institutional pressures (coercive, mimetic and normative) on the adoption of QM and Paper Two will examine the association between specific organisational factors (information technology (IT), extent of market competition, Expert Systems (ESs) and supplier evaluation programmes) with the adoption of TQM.

2.2.2 Factors affecting quality management adoption

Many studies have examined the effect of various contingency factors on the adoption of QM, including TQM (e.g. Wanderi et al., 2015; Al-Omiri, 2012; Duh et al., 2012; Das et al., 2011; Kumar et al., 2011; Wali and Boujelbene, 2009; Sila, 2007; De-Cerio,

2003; Young et al., 2001; Ghobadian and Gallear, 1997; Westphal et al., 1997). For instance, previous studies have identified the association of factors such as information technology (Srouf, 2014; Al-Omiri, 2012; Lorente et al., 2004; Ang et al., 2001), organisational size (Jayaram et al., 2010; Sousa and Voss, 2001; Sila, 2007; Lorente et al., 2004; Ghobadian and Gallear, 1996; Ahire et al., 1996), the extent of market competition (Duh et al., 2012; Al-Omiri, 2012; Wali and Boujelbene, 2009; Chong and Rundus, 2004), product diversity (Duh et al., 2012), leadership competencies (Das et al., 2011; Laohavichien et al., 2011), organisational culture (Baird et al., 2011; Zu et al., 2010; Prajogo and McDermott, 2005; Rad, 2005), manufacturing strategy (Sousa and Voss, 2001), and organisational structure (Zhang et al., 2012) with the adoption of TQM.

The following sub-sections provide an overview of the research examining the association between the most widely examined contingency factors: organisational size, market competition, organisational culture, information technology, and institutional pressures with the adoption of TQM.

2.2.2.1 Organisational size

There is conjecture as to the impact of organisational size on the adoption of TQM. For instance, according to organisational theory (Yusuf and Aspinwall, 2000; Damanpour, 1992), size is a critical organisational factor which influences the way organisations design and use control systems for decision making. In this respect, Edwards et al. (1998) and Mohrman et al. (1995) found that the adoption rate of TQM was higher for larger organisations compared to small organisations. Since large organisations usually have more skilled employees compared to small organisations, they are more capable of

adopting TQM (Hannan and Freeman, 1984) with Wali and Boujelbene (2009) stressing that large organisations attempt to sell products on a highly competitive market and hence are more willing to adopt TQM practices in order to improve the quality of products. In addition, Shah and Ward (2003) state that large organisations have more market clout, capital and expertise in TQM. Further, Duh et al. (2012) and Haar and Spell (2008) also found a positive association between size and the adoption of TQM, with Duh et al. (2012) suggesting that larger organisations have more resources, thereby facilitating the adoption of TQM. In line with this, Ismail and Hashmi (1999) indicate that smaller organisations are less likely to adopt TQM.

However, contrary to the above findings, Hendricks and Singhal (2001) found that the implementation of TQM was more difficult for large organisations, arguing that larger organisations have more complex structures due to the multiple layers of management, many cross functional lines, and complex bureaucracies which cause resistance to change and which create barriers in implementing TQM (Kelly, 1992). Alternatively, small organisations have flatter organisational structures and more informal communication channels, thereby enabling quality systems design elements to be more effective. In this respect, Zinn et al. (1998) reveals that organisational size is not associated with the adoption of TQM. Similarly, the findings of Fisher (1993) and Powell (1995) suggest that organisational size may impede TQM adoption. Accordingly, future studies should further investigate the association between size and TQM adoption.

2.2.2.2 Market competition

Competition is a key factor which organisations must face and respond to in order to survive in the competitive market (Chong and Rundus, 2004). Al-Omiri (2012) maintain that intense competition in the market causes manufacturing organisations to search for a competitive edge in their manufacturing operations and processes. Similarly, Premkumar and Roberts (1999) suggest that the perceived level of competition positively affects the adoption of any innovation. Hence, Duh et al. (2012) suggest that organisations with high levels of competition strive to improve their manufacturing processes by adopting quality enhancement programs, such as TQM, a management practice which emphasises customer satisfaction by focusing on customer oriented products or services (Duh et al., 2012).

The association of market competition with the adoption of TQM is widely supported in the literature. Specifically, Duh et al. (2012), Al-Omiri (2012) and Chong and Rundus (2004) all discuss the importance of market competition as a contextual factor in the adoption of TQM. Duh et al. (2012) for instance, found that organisations in a competitive industry are more inclined to adopt TQM. Similarly, Chong and Rundus (2004) found a positive association between market competition and the adoption of TQM practices, suggesting that a high degree of market competition is positively associated with the TQM practices of customer focus and product/service design. Similarly, Djerdjour and Patel (2000) provide evidence of the effect of competition on the adoption of TQM, indicating that the changing nature of the market led organisations to adopt TQM. Malik et al. (2010) also found a positive association between competition and the adoption of TQM.

2.2.2.3 Organisational culture

According to House et al. (2004, p.15) culture refers to the “shared motives, values, beliefs, identities, and interpretations or meanings of significant events that result from common experiences of members of collectives that are transmitted across generations”. Previous studies have examined the association of organisational cultural characteristics with quality management implementation (Valmohammodi and Roshanzamir, 2015; Gimenez-Espin et al., 2013; Baird et al., 2011; Zu et al., 2010; Rad, 2006; Prajogo and McDermott, 2005; Chapman and Solan, 1999). For instance, Baird et al. (2011) found a relationship between organisational culture with the extent of adoption of TQM, suggesting that the cultural dimension teamwork/ respect for people is critical in increasing the use of specific TQM practices, while more outcome oriented and innovative business units were found to use TQM practices to a great extent. Valmohammodi and Roshanzamir (2015) found a strong and positive association between organisational culture with the level of TQM implementation. Similarly, Gimenez-Espin et al. (2013) found a positive association between culture with TQM, suggesting that the ‘adhoratic culture’¹ is positively associated with TQM, while ‘the mixed culture’² is the most appropriate for TQM.

Similarly, Rad (2005) stresses the impact of culture on the use of TQM indicating that TQM requires a quality oriented culture supported by senior management commitment and involvement, organisational learning and entrepreneurship, teamwork and collaboration, risk taking and open communication, continuous improvement, customer

¹Adhoratic culture focuses mainly on flexibility and is external oriented which emphasises on customers, competitors, and the environment (Gimenez-Espin et al., 2013).

²Mixed culture is the combination of adhoratic culture and clan culture which focuses on the people, products, and processes of the organisation (Gimenez-Espin et al., 2013).

focus, partnership with suppliers, and the monitoring and evaluation of quality. Chapman and Solan (1999) also argue that TQM is largely reliant on the prevailing organisational culture, while Zu et al. (2010) investigated the association between culture types with TQM and Six Sigma practices, reporting that a group culture³ is the most critical type for TQM and Six Sigma implementation, while a rational culture⁴ is found to have a significant effect on TQM practices. In a similar vein, Prajogo and McDermott (2005) explore the association between culture and TQM in Australian organisations, suggesting that TQM practices are significantly associated with a hierarchical culture⁵.

2.2.2.4 Information technology

Information Technology (IT) refers to any form of computer based information system (Orlikowski and Gash, 1992). A number of studies have focused on the association between IT with the use of TQM. For instance, Jabnoun and Sharaoui (2004) mentioned that IT facilitates the adoption of TQM. Zadrozny and Ferrazzi (1992) also provide evidence that IT supports the adoption of TQM through assisting in strategic, human resource and technology areas. In this respect, Rodriguez et al.(2006) found an association between IT with TQM, with TQM depending on IT for improvements in the quality of products and services.

³ A group culture emphasises flexibility and internal integration, belongingness, trust and participation, relations through cohesiveness, openness, commitment and attachment (Denison and Spreitzer, 1991).

⁴ The rational culture is externally oriented but emphasises control and stability with a focus on competitiveness and goal orientation (McDermott and Stock, 1999).

⁵ The hierarchical culture is both control and internally oriented and emphasises rules, regulations, and standardisation to achieve control and stability (Prajogo and McDermott, 2005).

Hughes (1994) stresses the role of IT in TQM processes referring to IT as a tool which facilitates TQM. In a similar vein, Lorente et al. (2004) examine the effect of IT on TQM dimensions, suggesting that the most intensive users of IT perceive a bigger impact on their TQM dimensions. Similarly, Ang et al. (2001) reported an association between IT with TQM processes in the Malaysian Public Sector, stressing that IT facilitates TQM implementation in terms of innovations, the analysis of information, quality assurance and the utilisation of human resources. Similarly, Dewhurst et al. (2003) provided evidence of an association between the extent of use of IT with TQM practices. They suggest that IT facilitates TQM through improving customer and supplier relationships, increasing process control, facilitating teamwork, facilitating inter-departmental information flow, and improving process design and skills.

2.2.2.5 Institutional pressures

In examining the adoption of QM, some researchers have examined QM adoption from an institutional perspective, examining the influence of institutional pressures as a contingency factor affecting TQM adoption. Institutional theory maintains that an organisation is an open system where the members are involved in shaping the organisational systems and procedures (Scott, 1998). It is inferred that the changes in the “organisational environment are viewed as defining not only the appropriate systems, structures and behaviours but also the manner in which it conforms to institutionalised beliefs in society” (Munir, 2011, p.97).

As proposed by DiMaggio and Powell (1983), there are three institutional pressures namely coercive, mimetic and normative that prompts organisations to follow similar structures and practices across organisational fields (Zhu et al., 2013). Coercive

pressure results when firms comply to “the formal and external pressures exerted upon them by other firms upon which they are dependent, and the cultural expectations by the society within which the firms functions” (DiMaggio and Powell, 1983, p.150). Mimetic pressure results as firm respond to uncertainty by mimicking actions of other firms. When technologies are not well understood, goals are unclear, firms may imitate other firms’ practices whom they perceived to be successful (DiMaggio and Powell, 1983). Normative pressures arise as a result of initiations taken by professional bodies to motivate the acceptance of certain structures, systems and processes, which eventually force organisations to adopt them (Burns, 2000). Normative pressure occurs when managers within an organisation are under pressure to follow a set of norms, values and rules developed by professional bodies (Munir et al., 2013; Papadimitrio and Westerheijden, 2010). Normative pressures force organisations to conform in order to be perceived as legitimate (Zhu et al., 2013).

There are only a limited number of studies which have examined the influence of institutional pressures on the adoption of QM with such studies emphasising the adoption of TQM. For instance, Westphal et al. (1997) developed a theoretical framework that integrated institutional and network perspectives in investigating the adoption of TQM. They advocate that while efficiency gain was the reason for adopting TQM for early adopters, later adopters of TQM experienced normative pressure to adopt legitimate quality practices. Furthermore, it was found that more recent adopters of TQM would mimic the early adopters’ quality practices rather than customising them to their unique needs and capabilities. In another study, Young et al. (2001) showed that the adoption of innovations such as TQM was influenced by both top management and

network/institutional factors. Hence, both normative and mimetic forces were found to be critical in influencing TQM adoption.

While previous studies have only focused on the influence of mimetic and normative pressures on the adoption of TQM, this study contributes to the limited literature by examining the influence of all three institutional pressures namely coercive, mimetic and normative on the adoption of QM. In particular, Paper One of the thesis examines the influence of institutional pressures on the use of QM using DiMaggio and Powell's (1983) notion of institutional pressures.

In addition, this thesis aims to extend the contingency literature by focusing on the association between four organisational related factors (IT, intensity of market competition, ESs and the supplier evaluation programmes) and the adoption of TQM. While previous studies have examined the association between IT (Al-Omiri, 2012; Lorente et al., 2004) and the intensity of market competition (Duh et al., 2012; Al-Omiri, 2012; Chong and Rundus, 2004) with the adoption of TQM, Paper Two of the thesis aims to provide a broader insight into these relationships by examining the association between two additional factors, namely ESs and supplier evaluation programmes and the adoption of TQM. ESs facilitate an organisation's design of TQM programs and develop TQM strategies (Nwankwo et al., 2002) through better decision making and the efficient use of resources (Metaxiosis et al., 2002). Supplier evaluation programs are emphasised as a factor which ensures supplier quality (Giunipero and Brewer, 1993) through supplier audits and providing feedback on suppliers' performance (Zhang et al., 2000), thereby assisting in TQM adoption. In examining these relationships Kaynak's core TQM practices model is used. In particular, while

previous studies have assessed the overall adoption of TQM, with respondents simply indicating whether they are using TQM or not, this study operationalises TQM in respect to the use of Kaynak's four core TQM practices. Specifically, Paper Two of this thesis examines the association between the four organisational related factors and (i) the extent of adoption of TQM, measured as the combined score of the four core TQM practices, (ii) and each of the four core TQM practices. Paper Two also examines the association of the four core TQM practices with each other.

2.2.3 Quality management effectiveness

The effectiveness of QM has been extensively examined in the QM literature with the majority of these studies tending to focus on two aspects of effectiveness: (1) organisational performance and (2) competitive advantage. Section 2.2.3.1 provides an overview of the studies which have examined the association between various QM factors and organisational performance, while Section 2.2.3.2 discusses the literature examining the association between QM factors and competitive advantage.

2.2.3.1 Organisational performance

Previous studies have examined the association between various QM factors such as top management support (Talib et al., 2013; Zehir et al., 2012; Abusa, 2011; Saleheldin, 2009; Pinho, 2008; Vijande and Gonzale, 2007; Feng et al., 2006; Hoang et al., 2006; Demirbag et al., 2006; Sila and Ebrahimpour, 2005; Sohail and Hoong, 2003; Sharma and Gadenne, 2002; Agus and Abdullah, 2000; Saraph et al., 1989; Powell, 1995), employee involvement (Fotopoulos and Psomas, 2010; Saleheldin, 2009; Sohail and

Hoong, 2003; Sharma and Gadenne, 2002), employee empowerment (Salehheldin, 2009; Kapuge and Smith, 2007; Sohail and Hoong, 2003; Powell, 1995), customer focus (Basu and Bholap 2016; Zehir et al., 2012; Kapuge and Smith, 2007;Feng et al., 2006;Sila and Ebrahimpour, 2005; Agus and Abdullah, 2000; Flynn et al.,1995), training (Basu and Bholap, 2016; Agus and Abdullah, 2000), reward and recognition (Zhang et al., 2000), and culture (Baird et al., 2011; Pinho, 2008) and organisational performance, including financial and non-financial performance, and quality and innovative performance.

In examining the association between organisational factors and QM effectiveness, Demirbag et al. (2006) determine the effect of TQM factors and their impact on financial and non-financial performance concluding that there is a strong positive association of TQM factors with non-financial performance, but a weak association with financial performance. Agus and Abdullah (2000) show the association of TQM factors with financial performance, suggesting that TQM factors facilitate increasing customer satisfaction, thereby improving financial performance. In this respect, Sila and Ebrahimpour (2005) examine the effect of TQM factors including leadership, strategic planning, customer focus, information and analysis, human resource management, and process management with both financial and non-financial performance. They found that the effective implementation of TQM factors is likely to result in improved performance.

Abusa (2011) in this respect, found an association between TQM factors with both financial and non-financial performance, suggesting that the role of TQM factors, in

particular, top management support is critical in influencing performance. Fotopolous and Psomas (2010) reported that TQM factors including top management, employee involvement, customer focus, quality tools and techniques have an impact on organisational performance in terms of both financial and non-financial performance. In a similar vein, Vijande and Gonzale (2007) provided evidence of the association of TQM factors with both financial and non-financial performance, suggesting that TQM practices allow organisations to outperform their competitors.

There are some studies which have examined the association of QM factors with quality and innovation performance. Basu and Bholap (2016) for example examined the association of QM factors with quality performance, referring to a positive association between customer focus, training and service level management with quality performance. Terziovski and Samson (1999) examine the association of TQM factors with quality and innovation performance, suggesting that the association between TQM factors and performance is significantly different in different industries in respect to defect rates, warranty costs, and the level of innovation of new products. In a similar vein Talib et al. (2013) examined the association of TQM factors with quality performance, suggesting that while quality systems, training and education, teamwork and benchmarking were found to be positively associated with quality performance, a quality culture was perceived as the dominant TQM factors affecting quality performance.

Zehir et al. (2012) also found a positive relationship between TQM factors with quality performance and innovative performance, suggesting that leadership commitment and

process management has a positive effect on quality performance, while customer focus was positively associated with innovative performance. In examining this relationship, Feng et al. (2006) found an association between organic dimensions such as leadership and people management with innovative performance, while mechanistic dimensions such as customer focus and process management were associated with quality performance. In this respect, Hoang et al. (2006) confirmed the result of previous studies indicating that TQM factors are associated with innovative performance. Specifically, the findings show that TQM factors such as leadership and people management, process and strategic management and an open organisation have a positive effect on organisation's innovative performance. This finding is consistent with Hung et al. (2011).

2.2.3.2 Competitive advantage

Competitive advantage is an advantage over competitors gained by offering consumers greater value either by means of lower prices or by providing greater benefits (Ehmke, 2008). In order to achieve competitive position, organisations concentrate on producing higher quality products (Agus and Hassan, 2011) with some studies consequently measuring QM effectiveness in terms of the level of competitive advantage achieved (Agus and Hassan, 2011; Shenawy et al., 2007; Douglas and Judge, 2001; Reed et al., 2000; Flynn et al., 1995; Powell, 1995).

In measuring QM effectiveness, Reed et al. (2000) argue that the process of TQM has the potential to create sustained competitive advantage. Similarly, Douglas and Judge

(2001) found an association between the extent of adoption of TQM practices and competitive advantage. While these studies examine the association between the adoption of TQM and competitive advantage, few studies have examined the association between specific organisational factors aimed at supporting TQM factors, and competitive advantage. In this respect, Powell (1995) for instance, examined TQM factors as a potential source of sustainable competitive advantage and found that an open culture, employee empowerment and executive commitment can produce competitive advantage. Similarly, Shenawy et al. (2007) found an association between various TQM factors including top management commitment/leadership, teams, culture, training/education, and process efficiency and competitive advantage.

However, while there are many studies which have examined QM effectiveness and the factors influencing QM effectiveness, they have focused on organisations in developed economies (Zehir et al., 2012; Corredor and Goni, 2011; Fotopolous and Psomas, 2010; Gadenne and Sharma, 2009; Kumar et al., 2011; Pinho, 2008; Vijande and Gonzale, 2007; Prajogo and Sohal, 2006; Feng et al., 2006; Demirbag et al., 2006; Rahman and Bullock, 2005; Prajogo, 2005; Chong and Rundus, 2004; Prajogo and Brown, 2004; Fuentes et al., 2004; Prajogo and Sohal, 2003; Watson et al., 1994; Montes et al., 2003; Kaynak, 2003; Rahman, 2001; Samson and Terziovski, 1999; Terziovski and Samson, 1999) with only a few studies examining QM effectiveness in the context of developing economies (Basu and Bholap, 2016; Gharakhani et al., 2013; Talib et al., 2013; Zhang et al., 2012; Hung et al., 2011; Abusa, 2011; Saleheldin, 2009; Kapuge and Smith, 2007; Sohail and Hoong, 2003; Osuagwu, 2002). In addition, the majority of studies on the effectiveness of QM in developing economies have assessed effectiveness in respect to organisational performance. Hence, there is sparse

empirical evidence assessing QM effectiveness in respect to competitive advantage. Therefore, this thesis is motivated to assess effectiveness in terms of competitive advantage in the context of a developing economy.

In addition, since previous studies have examined the direct association of QM factors with competitive advantage (Shenawy et al., 2007; Powell, 1995), this study aims to extend the literature by examining the mediating effect of specific factors on such associations in the context of a developing economy. Specifically, Paper Two and Three of this thesis aim to contribute to the literature by examining the mediating role of Kaynak's core TQM practices and quality performance respectively in the association between organisational related factors and competitive advantage.

2.3 Summary

This chapter has provided a comprehensive review of the QM literature. First, a general discussion on the nature of QM practices including TQM was provided. An explanation of the operationalisation of TQM using Kaynak's (2003) core TQM practices model was also provided. Secondly, the chapter reviewed the QM studies examining the contingency factors affecting the adoption and effectiveness of QM. In particular, a discussion of the association of various organisational related factors with the adoption of QM was provided. While the majority of the QM literature has focused on developed economies, few studies have focused on this issue in the context of developing economies. Accordingly, this thesis examines the association between organisational related factors with the adoption of QM in a developing economy, Bangladesh.

Specifically, Paper One examines the influence of three institutional pressures (coercive, mimetic and normative pressures) with the adoption of QM and Paper Two examines the association between four specific organisational related factors (IT, extent of market competition, ESs and supplier evaluation programmes) and the adoption of TQM in the context of a developing economy.

A discussion on QM effectiveness was also provided. The thesis examines the mediating effect of TQM practices and quality performance on the association between organisational factors and competitive advantage in the context of a developing economy. Specifically, Paper Two examines the association between four organisational related factors (IT, extent of market competition, ESs, supplier evaluation programmes) and competitive advantage through Kaynak's four core TQM practices (quality data and reporting, supplier quality management, product/service design, process management). In addition, Paper Three examines the association between six organisational factors (top management commitment, employee involvement, employee empowerment, training, reward and recognition, customer focus) and competitive advantage through quality performance.

The remaining chapters are structured as follows. Chapters Three, Four, and Five provide the three self-contained papers. Each paper is in an academic journal format and includes tables, figures and references. Chapter Six then summarises the findings of each of the three papers, discusses the contributions to both relevant literature and practice, identifies the limitations and provides suggestions for future research.

CHAPTER THREE

PAPER ONE

The institutional pressures affecting the use of

Quality Management in Bangladesh

Abstract

Using DiMaggio and Powell's (1983) notion of institutional theory, this study examines the influence of institutional pressures on the use of quality management (QM) practices in a developing economy. The findings suggest that the use of QM practices is influenced by all three institutional pressures namely coercive, mimetic and normative pressures. The changes to the company's QM practices were attributed to coercive pressures, which mainly consisted of directives from top management aimed at improving quality in response to pressure from retailers and increased competition following the removal of the Multi-Fibre Arrangement. Mimetic pressure arose due to the high competition and the resultant uncertainty within the market, while normative pressures were attributed to the influence of professional garment associations, top management support and training. The study contributes to the management accounting literature and the developing economy literature through providing knowledge about changes in the QM practices in a garment organisation within a developing economy.

Keywords

Quality management practices; institutional pressures; case study; developing economy.

1. Introduction

Over the last two decades, organisations have faced pressure from their institutional environment⁶ to improve their competitiveness in respect to costs and quality, with customers demanding a wider variety of high quality products at a competitive price. Consequently, organisations have invested substantial resources in implementing management practices, including quality management (QM), which provide them with a competitive advantage in the market place. Most researchers refer to QM as the integration of all the functions of a business developed to satisfy customers and facilitate continuous improvement in products and services (Solomon and Hogan, 2012; Schuurman, 1997) and to improve performance (Zhang et al., 2012). Historically, QM practices have evolved from simply inspecting, sorting and correcting quality problems, to developing systems for third-party certification, standard operating procedures, and statistical techniques such as Statistical Process Control (SPC). In the current era, QM practices have evolved into Total Quality Management (TQM), a key management tool that focuses on improving the quality of goods and services based on continuous improvement in order to meet customer expectations and organisational objectives through integrating organisational functions (Dubey and Gunasekaran, 2014). Specifically, TQM involves an organisational commitment to continuously improve and meet the requirements of customers (Sharma and Kodali, 2008).

Many studies have concentrated on the conditions that enable organisations to use management practices including QM practices (e.g. Al-Omiri, 2012; Duh et al., 2012;

⁶ The institutional environment includes the laws and norms by which a society lives and the mechanisms created by multiple stakeholders (such as government, competitors, suppliers etc.) to enforce rules, regulations and norms (North, 1990, p.4)

Wali and Boujelbene, 2009; Sila, 2007). While most studies have focused on the association of specific factors with the use of QM practices including organisational size, structure, control systems, the intensity of the competitive environment, and the impact of information technology (e.g. Srour, 2014; Al-Omiri, 2012; Wali and Boujelbene, 2009; Haar and Spell, 2008; Sila, 2007), this study focuses on how QM practices are influenced by the pressures stemming from changes in the institutional environment including changes attributable to the government, regulatory bodies, accredited companies or customers/suppliers. Specifically, using DiMaggio and Powell's (1983) notion of institutional pressures, this study seeks to explain that organisations adopt QM practices due to the influence of the three forms of institutional pressures, namely, coercive, mimetic, and normative pressures. According to DiMaggio and Powell (1983), coercive pressure arises due to the dependency on other organisations for resources, mimetic pressure takes place when organisations are under uncertainty and copy other organisations in order to gain legitimacy, and normative pressure is associated with professionalisation and arises when managers within an organisation are under pressure to follow a set of norms, values and rules developed by professional bodies (Munir et al., 2013; Papadimitriou and Westerheijden, 2010).

An understanding of these institutional pressures is crucial for organisations as their QM practices need to adapt in line with the changes in their institutional environment (Munir et al., 2013), with the degree of change likely to depend on the intensity and magnitude of such institutional pressures. Accordingly, an awareness of the factors influencing changes in QM practices and the specific pressures that enact change is required to fully understand the changes in QM practices within manufacturing organisations. The few studies which have examined the influence of institutional

pressures on QM practices were conducted in developed economies (Westphal et al., 1997; Zinn et al., 1998). Therefore, the current study contributes to the literature by examining the influence of institutional pressures on manufacturing organisations operating in developing economies. In particular, the study adopts a case study approach, focusing on an organisation operating in the garment industry within Bangladesh. The focus on developing economies is considered to be important due to their unique environments. In particular, developing economies are growing faster than developed economies, and there is a vast increase in trade and capital flows within developing economies (Citigroup, 2010). Further, Munir et al. (2013) suggest that the divergent conditions (i.e. the political, economic and cultural environments) of developing economies provide an appropriate research setting to tease out any research phenomena and generalise research findings. Therefore, this research aims to contribute to the literature by examining the influence of institutional pressures on the adoption of QM in the context of a developing economy. Hence, this study addresses the following research question:

What is the influence of institutional pressures on the adoption of Quality Management practices in a manufacturing organisation operating in a developing economy?

The remainder of the paper is structured as follows. Section 2 provides a literature review, and Section 3 focuses on the theoretical framework of the study. Section 4 then discusses the research method. Section 5.1 provides the background of the case company and its context. Section 5.2 then discusses the nature of the QM practices in the case organisation, and Section 5.3 focuses on the institutional pressures to change

QM practices. Section 6 provides the discussion and conclusion of the study and finally Section 7 discusses the limitations and future directions for research.

2. Literature review

A review of the literature suggests that QM relates to the management of the overall activities of the management function including the quality policy, objectives and responsibilities. It includes quality planning, quality control and quality assurance (Russell, 2012). While the notion of managing and measuring product quality has been used for many years (Juran, 1995), formal measures were first developed towards the end of the 13th century and involved the regular inspection of goods.

During the Industrial Revolution, the need for “quality control” through more effective operations became evident. Hence, in the 1920s, statistical techniques were introduced to control processes to minimize defective outputs (Fisher and Nair, 2009). This was then extended by integrating quality into different functional areas relating to the production process, including suppliers, sales, production and services (Schuurman, 1997). Subsequently, process quality control, and statistical control charts were developed to eliminate variations in processes and defects which lead to improved quality (Fisher and Nair, 2009).

Following World War II, the important role of management, cultural transformation and employee-management relationships were identified as a means of achieving higher quality with quality control tools including check-sheets, control charts and histograms used. Following these developments towards the end of the 1980s, TQM was advocated

by management experts as a philosophy to improve the competitiveness of each part of the organisation (Arumugam et al., 2008). It was expected that TQM would contribute to the achievement of corporate targets by ensuring the production of high-quality products which meet the expectations of customers.

TQM is an overall management philosophy which strives for organisation wide improvement that can be achieved by utilizing the total quality concept in all components of the value chain. Several authors (e.g., Kim et al., 2012; Jalahma and Gallea, 2010; Kaynak, 2003; Zhang et al., 2000) have explained the principles of TQM as encompassing elements including culture, management leadership, top management commitment, employee involvement, training, reward systems, supplier partnerships, continuous improvement, quality data and reporting, process management, and product/service design. TQM tools and techniques are essential to improve quality (Donauer et al., 2015).

As research on QM advanced, researchers moved beyond simply justifying the practice to focus more on developing an understanding of the effect of context on TQM adoption. For instance, many studies have used contingency based research to search for conditions that facilitate the adoption of QM practices (e.g. Al-Omiri, 2012; Duh et al., 2012; Wali and Boujelbene, 2009; Sila, 2007). Early studies in this area focused on the economic and organisational factors that motivated or hindered QM adoption decisions by organisations. For instance, studies identified the association of factors such as organisational size, performance, functional differentiation, and structure (e.g. Duh et al., 2012; Jayaram et al., 2010; Haar and Spell, 2008; Sila, 2007; Wali and

Boujelbene, 2009; Lorente et al., 2004; Ahire et al., 1996; Benson et al., 1991) with the adoption of QM. More recent studies have explored the association between macro-level factors such as the intensity of the competitive environment, and the impact of information technology (e.g. Srour, 2014; Al-Omiri, 2012; Haar and Spell, 2008) with the adoption of QM. However, there are few studies (Young et al., 2001; Westphal et al., 1997) which have examined the adoption of QM from an institutional perspective. One such study by Westphal et al. (1997) developed a theoretical framework incorporating the institutional and network perspectives to explain the consequences of innovations such as TQM, and concluding that mimetic and normative pressures influenced the adoption of TQM. They suggested that while the early adopters of TQM did so for efficiency gains, later adopters of TQM experienced normative pressure to adopt legitimate quality practices. It was found that more recent adopters of TQM would imitate the early adopters' quality practices rather than customising them to their unique needs and capabilities. In another study, Young et al. (2001) showed that both top management and network/institutional factors influenced whether and when organisations adopted innovations such as TQM. Their findings suggest that normative and mimetic forces are important determinants of TQM adoption.

The few studies which have examined the influence of institutional pressures on QM practices were conducted in developed economies (Young et al., 2001; Westphal et al., 1997). The focus on developing economies as a research setting is considered important due to the unique environmental conditions. Moreover, while previous studies have examined the influence of institutional pressures on QM adoption in service organisations (Young et al., 2001; Westphal et al., 1997), it is important to examine the influence of such pressures in manufacturing organisations where management and

operational specificities are different. The pressures on organisations within the manufacturing sector are complex and multifaceted. In addition, while previous studies have focused on mimetic and normative pressures (Young et al., 2001; Westphal et al., 1997), no study has addressed the influence of coercive pressures on the adoption of QM.

3. Theoretical framework

The New Institutional Sociology (NIS) strand of institutional theory advocates that the behaviour of organisations is stimulated by factors contained in the wider environment. According to the NIS, organisational behaviour focuses more on environmental pressures to attain legitimacy, rather than technical efficiency, from organisations on which they are dependent. These organisations adopt similar structures and processes when they are under similar environmental conditions (DiMaggio and Powell, 1983). As revealed by Scott (1998, p.12) “every organisation exists in a specific physical, technological, cultural and social environment to which it must adapt. No organisation is self-sufficient, all depend for survival on types of relations they establish with larger systems of which they are a part”.

According to institutional theory, an organisation is an open system where the participants are engaged in shaping the organisational systems and procedures (Scott, 1998). Farrell (1996, p.124) notes that “organisations are portrayed as being deeply embedded in, and constituted by the environment in which they operate”. In order to gain legitimacy and social support, organisations must adapt to environmental changes (Suchman, 1995). Hence, it is implied that the changes in the “organisational

environment are viewed as defining not only the appropriate systems, structures and behaviours but also the manner in which it conforms to institutionalised beliefs in society” (Munir, 2011, p.97). According to DiMaggio and Powell (1983), there are three types of institutional pressures namely, coercive, mimetic and normative. These pressures may act individually or in a group to stimulate the changes within the organisations. Hence, “Coercive isomorphism results from both formal and informal pressures exerted on organisations by other organisations upon which they are dependent, and by cultural expectations in the society within which the organisations functions”(DiMaggio and Powell, 1983, p.150). Guler et al. (2002, p.212) states that “dependent organisations are likely to adopt patterns of behaviour sanctioned by the organisations that control critical resources”. In particular, coercive pressures arise due to the power differences among organisations. For instance, in the garment industry the buyers place pressure on manufacturers to maintain specified policies, procedures, and techniques in order to retain contracts. In addition, buyers give preferences to those garment manufacturers who produce more environmentally-friendly products. Such preferential treatment acts as a coercive pressure. Alternatively, a garment organisation may require that a supplier adopts and implements TQM.

According to Munir et al. (2011), mimetic pressures arise due to environmental uncertainty. Specifically, as discussed by Braunscheidel et al. (2011), organisations may follow or imitate the practices of other successful organisations when they are under uncertainty. For example, the extensive competition and the associated uncertainty led garment manufacturers to copy the technologies, procedures, or quality management practices of other successful garment organisations in order to retain its position in the market.

Normative pressures are attributed to professionalisation (DiMaggio and Powell, 1983). According to Braunscheidel et al. (2011) professionalization includes the formal education provided by university specialists, and the professional organisations who advocate the rapid diffusion of changes. Normative pressures occur as the result of initiations taken by professional bodies to encourage the acceptance of certain structures, systems and processes, thereby placing pressure on organisations who feel obliged to adopt them (Burns, 2000). In the garment industry, garment associations arrange educational programs and training to influence garment firms to adopt certain practices and contemporary technologies.

4. Method

The case company was chosen from the Ready-Made Garment (RMG) industry in Bangladesh. The RMG industry was chosen because of the many institutional changes experienced during the period from 2005 to 2014 as a result of the phase out of the Multi-Fibre Arrangement (MFA)⁷ and the global financial crisis in 2008. These events had a significant impact on the garment sector in Bangladesh, including the case company, and led to changes in the QM practices employed. The case company (hereafter “Company A”) was identified through web searches and publicly available information. The company was contacted via the Human Resource Manager (hereafter “organisation contact”). The case company is a 100% export-oriented knit garment manufacturer with highly professional and skilled employees using contemporary machinery and technology. In examining the changes in the QM practices of Company

⁷ The Multi-Fibre Arrangement (MFA) governed the world in textiles and garments from 1974 through 2004, imposing quotas on the amount that developing countries could export to developed countries. It expired on January 1, 2005.

A, sixteen interviews were conducted with key employees at different management levels (Appendix B). Interviewees were required: (i) to have had involvement with QM activities in Company A; (ii) to have a minimum of five years' experience with the company and; (iii) to be willing to participate in the study. The company contact provided his support to find managers from different functional levels who met the above criteria. Sixteen individuals were selected based on their knowledge regarding the changes experienced by Company A in respect to its QM (See Table 1). Among the respondents, two were directors, nine were managers and five were supervisors.

Meetings were also held with the Vice-President of the Garment Association of Bangladesh, a former Director of the Chamber of Commerce and a Director of the Board of Investment. A separate interview guide (see Appendix C) was used for these three officials with the responses used to provide a useful insight into the changes introduced in the garment sector. These insights were used as supportive information.

In order to gain an insight into the institutional perspective and the company's environment internal and external documents covering the period 2005-2014 were also analysed. The documents used included Company A's meeting minutes, company brochures and the company's quality manual. Furthermore, evidence available from other documentary records such as the retailer's quality manual, instruction bulletins, and the Garment Association's brochures were collected and reviewed. Other relevant sources such as newspapers and magazines were also analysed to obtain an external view on the changes that had taken place in the industry and the changes within Company A.

The main interview guide included open-ended questions concerning the nature of the industry, the nature of and changes in the QM practices employed during 2005-2014, and the internal and external organisational factors that led to such changes. The interviews were conducted in March, 2014 and were recorded with the prior permission of the participants. Participants were offered the opportunity to conduct the interview in Bangladesh's own language, with ten respondents choosing to conduct the interviews in Bangla and the remaining six participants conducting the interviews in English. The Bangla interviews were transcribed and translated by a professional translator as well as transcriber. Nvivo software was used to analyse the data. At the initial stage, the interview data was categorised into 17 different codes to extract data relating to coercive, mimetic, and normative pressures. Gradually these 17 codes were minimised into three coercive pressures (retailers' requirements; chairman directives and; the directives of newly appointed quality managers and directors), two mimetic pressures (competition; imitation of QM practices) and four normative pressures (top management support, professional institutions, employee training and programmes; changes in company culture). Using the triangulation method, the responses of the interviews were compared with the documents collected from various sources in order to validate their responses (McKinnon, 1988).

5. Case Study

5.1 Company A and its context

'Company A' was established in the early 1990s as a private limited company with the aim to produce high quality ready-made garments (knitwear) for the international market. Initially, Company A commenced with few skilled managers and shop-floor workers, and had a small number of retailers. It is a vertically and horizontally integrated 100% export-oriented knit manufacturing company mainly producing

garments for European countries such as Germany, Netherlands, Spain, Denmark, Sweden and the UK, along with Japan and Russia. With 3,500 employees, the company is capable of producing 15 tonnes of knit and dyed fabrics, and 50,000 pieces of very high quality knit garments per day. A wide variety of customer segments including babies and infants, a productive work environment, continuous improvement, and employee engagement are some of the factors contributing to Company A becoming one of the leading Knit RMG factories in Bangladesh.

Participants' views suggested that along with a cheap labour force, the quota system imposed by the Multi-Fibre Arrangement (MFA) was a crucial factor affecting the development of the garment sector in Bangladesh. In 1974, the (MFA) was established in order to regulate global trade in textile and apparel products, imposing quotas on the quantity of apparel and textiles that one country was allowed to export to any specific country. In 1995, the Agreement on Textiles and Clothing (ATC) quotas were phased out in four stages over a ten-year period and then eliminated altogether on January 1, 2005. The abolition of the quota system created challenges for Company A and resulted in a struggle to differentiate its products from its competitors to attract international retailers. In this regard Manager 4 expressed that,

While [the] quota imposed [by the WTO placed] restrictions on competitor firms, as an exporter in European countries we have fully enjoyed a quota-free business environment. But the withdrawal of [the] quota challenged us to compete with strong competitors [from] China, India etc.

Table 1: List of participants

| Respondents | Designation | Department | Service Length |
|----------------------|---|---|-----------------------|
| Director 1 | Director , Factory & Operation | Production Department | 15 years |
| Director 2 | Director, Finance | Finance and Commercial Department | 11 years |
| Manager 1 | Manager, Human Resource | Human Resource Department | 6 years |
| Manager 2 | Head of Dyeing and Finishing | Dyeing and Finishing Department | 5 years 4 months |
| Manager 3 | Manager, Knitting | Knitting Department | 7 years |
| Manager 4 | Head of Planning and Supply Chain Management | Supply Chain Management Department | 6 years 2 months |
| Manager 5 | Head of Production | Production Department | 8 years |
| Manager 6 | Manger, Dyeing and Finishing | Dyeing and Finishing Department | 5 years |
| Manager 7 | Manager, Quality Control | Quality Control Department | 12 years |
| Manager 8 | Manager, Production | Production Department | 6 years |
| Manager 9 | Manager, Merchandising and Marketing | Merchandising and Marketing Department | 7 years 3 months |
| Quality Controller 1 | Quality Controller | Quality Control Department | 5 years |
| Quality Controller 2 | Quality Controller | Quality Assurance Department | 8 years |
| Quality Supervisor 1 | Quality Supervisor | Quality Control Department | 5 years 7 months |
| Quality Supervisor 2 | Quality Supervisor | Dyeing and Finishing Department | 6 years |
| Quality In charge | Quality- In-Charge (Quality Assurance) | Quality Assurance Department | 5 years |

5.2 The nature of Company A's QM practices

Prior to 2005, the QM practices of Company A were in its infancy. A number of participants revealed that the company commenced operations with a simple inspection technique, known as the 'Trial and Error' method which was used to measure quality from the cutting to the finishing of a garment. Using this approach quality inspectors would randomly inspect the production process to observe if there were any defects in garments. In this regard Manager 3 stated:

Prior to 2005, we started with the "Trial and Error Method". Using this technique the quality inspectors used to identify the error in the process and take necessary actions to make it better. Initially, the inspection level was not too hard which allowed us to use this technique to meet customers' requirements.

Director 1 also expressed that initially the retailers' requirements regarding QM were very minor and they were satisfied with the quality of the products produced by the company. It was also apparent that prior to 2005 the case company aimed to achieve a target Acceptable Quality Level (AQL) of 4.5%⁸ or less. As mentioned by Manager 7, prior to 2005 there was less pressure from retailers in regard to quality requirements, thereby creating a business environment in which company A was not overly concerned about the way they carried out their activities. Hence, Company A was not under any real pressure and did not make any special effort to adopt contemporary technologies and new QM practices to improve the efficiency of its operations. In this regard

Manager 2 states:

⁸ 4.5% refers to the maximum rate of unacceptable items of those inspected.

Initially, [prior to 2005] customers were not much demanding in respect to quality issues. Our export orientation allowed us to maintain an acceptable quality level. The customers were satisfied with [the] product quality that was produced by us.

In addition, participants stated that the company was not serious about continuously updating QM as management was not conscious of contemporary quality approaches. In regard to this, Manager 5 expressed the following:

We were dependent [prior to 2005] on low tech, low value and [cheap] labour. Due to the less pressure from customers⁹, we were not concerned about the state of the art technologies and contemporary quality management practices.

It was apparent that while there was little focus on QM prior to 2005, significant changes occurred in Company A's environment following the abolition of the MFA on 1st January 2005. For example, the AQL was reduced to 2.5% and hence became harder to achieve. In addition, retailers introduced minimum specifications in terms of fabric quality and dyeing uniformity. These changes resulted in the generation of institutional pressures during the period 2005 to 2010 which subsequently led Company A to introduce Total Quality Management (TQM) in 2010.

As claimed by Manager 1, in order to adopt TQM, Company A had to incorporate a broad range of changes including the development of measurable quality objectives which provided a consistent basis for the monitoring of continual improvement; the

⁹ The reference to customers in this study refers to the international buyers/retailers.

delegation of responsibilities and authorities to department representatives to ensure that quality policies were being carried out on a regular basis; the empowerment of employees to identify, document, and communicate any issues related to the processes of the quality management system and its effectiveness; the provision of regular feedback on employee performance and the introduction of a performance-based reward program to motivate employees. In this regard Manager 9 expressed:

The company had introduced a comprehensive quality management approach. Introduction of such [an] approach ensured employee involvement in every aspect of quality improvement, and empowered employees to suggest quality related issues with management. An organisation-wide reward program was also in place.

Several participants indicated that these changes were the result of various pressures, particularly coercive, mimetic and normative pressures. Some of these pressures were found to have a greater influence than others, as discussed in the following sections.

5.3 Institutional pressures to change QM practices

5.3.1 Coercive pressure

The initial coercive pressures arose following the phase out of the MFA. Similarly to other countries such as Sri Lanka, India and Pakistan, garment firms in Bangladesh had taken advantage of the MFA to successfully capture a significant market share for Bangladeshi garments in Europe and the US (Hasan, 2013). The abolition of the MFA resulted in increased competition in terms of quality and price. The gradual change in retailers' preferences started to influence Company A's processes especially in relation

to compliance, price and quality. In particular, company A felt pressure to improve the quality of products in line with retailers expectations to minimise the risk of retailers switching to another organisation. In this regard participants expressed:

Removal of [the] quota[s] opened more opportunities for the buyers to switch from one seller to another. Their expectation [s] from our company also increased as they believe that we could meet their requirements (Manager 1).

Abolition of [the] quota put us in huge price competition as well as quality. Our buyers were expecting more quality but at lower price as they have many options to move to other sellers (Director 2).

Subsequently under such pressure, at the end of 2005, Company A appointed a Director of Planning who had prior experience in quality tools and techniques in the garment industry. Manager 1 viewed that this appointment was crucial for the company due to the increased need for skilled and knowledgeable personnel to enhance the efficiency and effectiveness of the organisation and to improve the quality of products. Immediately after the appointment of the Director of Planning, at the beginning of 2006, company A introduced Quality Control (QC) with the aim to meet the quality requirements set by retailers. Company A was forced to adopt QC as a means of identifying and eliminating the defects in finished garments, thereby complying with the level of quality desired by retailers. Following this change, several Quality Control Circles (QCCs) were developed, with small groups of employees involved in identifying, analyzing, and solving quality related problems. Hence, the directives from

the Director of Planning coerced Company A to adopt new QM practices in order to satisfy retailers' requirements. While Quality Supervisor 2 indicated that the introduction of QC was difficult initially due to the lack of trained personnel, this was resolved through the recruitment of external trainers who provided training to employees.

No other significant change occurred until mid-2007 when retailers raised concerns regarding the fabric quality. Consequently, Company A was forced to improve its fabric quality in terms of fabric weight and fabric density. In this regard Manager 3 revealed that in order to maintain specific parameters such as stitch length and machine gauge, the company introduced on-line quality checking which enabled them to identify problems during the production run. In order to facilitate this process, company A had to develop a separate on-line quality checking team. Participants indicated that:

In order to improve fabric quality, we introduced on-line quality checking. This process had improved our fabric quality while [it] satisfied the requirements of buyers as well (Manager 2).

With a view to successfully implement[ing] the on-line quality checking, an on-line quality checking team was also introduced. This team was [responsible] for the improvement of fabric quality (Manager 6).

Following the financial crisis, in 2008 the management of the company realised that the cost of products was a major concern for retailers. Specifically, Director 1 indicated that

the renewal of contracts by retailers was largely dependent on both conformance with quality specifications and reducing production costs. Accordingly, Company A needed to enhance QM practices, with the introduction of such practices facilitating the reduction of costs. In a meeting with external consultants at the end of 2008, the Chairman of the company raised two concerns: (a) achieving further cost minimisation to enable matching competitors' prices; and (b) the adoption of more comprehensive QM practices. In order to minimise cost, the external consultants identified the sources of non-value added activities and costs involved in holding inventory, with the aim to hold less inventory so as to make it easier to identify the defective items. Consequently, in mid-2009 Company A initiated a JIT (Just-in-Time) system and appointed the manager of Quality Assurance to oversee the implementation of this system. In this respect Manager 9 expressed:

The use of [the] JIT system helped us to reduce [our] stock of inventory, which in turn develop [ed] such a work environment that allowed us to improve the quality through identifying defective raw materials from small stock. Because identifying defective items from small stock was easier than bulk stock.

Immediately after the implementation of JIT, in mid-2009 the Chairman of the company raised another concern regarding uniformity of the dyeing process. The Chairman intended to improve its dyeing uniformity to a world class level and hence initiated investment in human capital and technology in order to attain the desired quality in dyeing. As indicated by Manager 5 and supported by evidence in the

company bulletin, the key focus of introducing new dying technologies was to maintain dyeing uniformity, and to reduce defects to a zero deviation level.

Participants including Quality Controller 2 and Quality Supervisor 1 mentioned that Company A's engagement with large retailers, especially Japanese buyers, resulted in the introduction of more complex quality inspection techniques including 'Piece to Piece Checking' which focused on the inspection of every piece from a bundle of garments, and 'Seven Pieces Checking' which focuses on random inspection of seven pieces from a bundle of garments. According to Manager 8, these complex quality inspection techniques were targeted by the retailers to achieve zero defects. As mentioned by Director 1, following the introduction of more complex quality inspection approaches by retailers, at the end of 2009, the Chairman held a follow-up meeting. In this meeting the company emphasised the importance of conducting a review of the company's existing quality improvement techniques. Accordingly, following the recommendation of the external consultant, a 'development group' was formed consisting of the directors, head of production and planning, quality control managers, and an external consultant. In order to ensure quality in every piece, as demanded by retailers, this group subsequently introduced Quality Assurance (QA) at the beginning of 2010. While QC helped Company A to identify and correct defects in their finished garments, QA was more directed towards ensuring quality in every process, thereby minimising defects in the finished garments.

The pressure from retailers to produce a larger volume of products at a competitive price and of higher quality resulted in the Director of Planning stipulating that

Company A would adopt TQM by mid-2010. Hence, it was apparent that the adoption of TQM was a rational decision by the company to secure its position in the competitive market.

5.3.2 Mimetic pressure

The increased competition associated with the free and open competition in the post MFA period affected Company A's operations. This situation made it difficult for Company A to compete using its existing information management techniques. Accordingly by the end of 2006, the increased requirements for market information and data concerning scrap, rework, the costs of quality, and customers' taste and preferences, led Company A to review competitors' information systems. As revealed by Director 2, the competitors' success motivated Company A to imitate a high speed Earth-net Local Area Network which was crucial for Company A to enhance quality in terms of the regular monitoring of product quality, delivery status, customer information, and suppliers' quality information. In this respect, Director 1 indicated:

The foreign and local firms' use of information system[s] to track quality data and information regarding the production and suppliers, motivated us to introduce such a system.

As expressed by Manager 5 and Quality Controller 2, one of the compelling reasons for Company A's introduction of Computer Aided Design (CAD) was the success of other organisations. Manager 7, mentioned that the adoption of CAD to produce better designed products was expected by Company A's retailers. Hence, at the beginning of

2007, Company A introduced CAD to ensure consistency in its sample design and to make every piece of apparel an identical production of the original sample.

Further, while Company A was struggling to reduce the defect rates of its finished garments, competitors were found to be successful in using QA in this respect. This eventually motivated Company A to adopt such a technique. Accordingly, in consultation with the garments associations' representatives and the foreign consultant, the Director of Planning introduced QA at the beginning of 2010. Consistent with the argument by DiMaggio and Powell (1983), the observance of successful firms' QM practices resulted due to mimetic pressures, which encouraged organisations within an industry to adopt similar practices to gain legitimacy. In addition, given organisations in competitor countries such as China, India, Vietnam and some high performing local firms were offering a large volume and variety of high quality and low cost garments, this created uncertainty for Company A regarding the maintenance of its position in the market, and eventually led Company A to adopt TQM. As expressed by Manager 2:

Due to the rapid changes in customer demand and pressures from [the] competitive global market, many firms adopted TQM in order to continuously improve quality for the customer satisfaction; we also recognised the need for such practices to ensure better quality in respect to better serve our customers. This was a reason which led our top management to follow the TQM of competitor firms.

5.3.3 Normative pressure

Normative pressures were attributed to professional associations, top management support and training. Professional associations including the Bangladesh Garment

Manufacturers and Exporters Association (BGMEA), and Bangladesh Knit Manufacturers and Exporters Association (BKMEA) influenced Company A in relation to improving quality and the adoption of the quality management tools and techniques required by retailers. The participants and the review of the documents revealed that during 2006, BKMEA initiated a Productivity Improvement Program through the Productivity Improvement Cell (PIC) in order to provide consultancy services and training programs to garment firms. In addition, management level employees received training from outside of the organisation and later provided training to other employees based on their work responsibilities. As expressed by the representative from the garment association:

...both of the garment associations are dedicated to look after the interest of this industry.....despite having less support from the government, we have initiated several improvement programs with a view to develop this sector. We have started to provide regular training on quality management and encourage our firms to participate in these trainings to develop their individual firm.

The increased quality concern, especially after 2005, gradually resulted in the top management of Company A infusing a culture of continuous improvement. The chairman and directors of the Company introduced regular QM training within the organisation. In addition, Manager 1 stated that there were weekly meetings organised by the individual departments to discuss their problems and to initiate progress regarding quality. In this respect Manager 1 expressed:

With the growing demand for increased quality, a gradual change in corporate culture was introduced by the top management in order to continuously improve the quality. Accordingly, training and workshops were organised on a continuous basis along with regular weekly meeting.

As revealed by the participants, the Director of Planning and Manager of Quality Assurance had played a key role by effectively communicating the need to adopt new QM practices within the company. Their previous experience, skills and knowledge from working in firms with a culture of continuous quality improvement, helped to promote changes in the QM practices within company A.

The review undertaken by the ‘development group’ highlighted the necessity for continuous improvement with the aim to infuse a culture of quality improvement. With a view to encouraging a quality culture and providing a more concrete direction for management regarding existing customers’ requirements, at the beginning of 2010, with the involvement of the Director of Planning, the Manager of Quality Assurance and external consultants, Company A revised its quality objectives. A careful examination of the revised objectives indicates their consistency with the retailers’ requirements. Accordingly, they developed a slogan for the company:

“Quality is our commitment. Buyer satisfaction is our vision”.

Manager 5 observed that the commitment of top management to improve quality and the revised quality objective helped to develop an environment which was more focused

toward the vision and mission of the company. Management facilitated the institutionalisation of the vision and mission by formally communicating them to employees through the company bulletin, regular training and weekly meetings.

6. Discussion and conclusions

The purpose of this study was to analyse the institutional pressures influencing the changes in the QM practices within the garment sector in a developing economy. The study contributes to two strands of literature, QM studies within the management accounting literature, and the literature on developing economies. It provides practical evidence on how the changes in QM practices are influenced by the institutional environment. Specifically, the study incorporated the concept of DiMaggio and Powell's (1983) notion of institutional pressures in order to provide an insight into the changes that were made to the QM practices of a garment organisation operating in a developing economy. While other studies (Young et al., 2001; Westphal et al., 1997) examined the influence of two institutional pressures (mimetic and normative pressures), this study contributes to the sparse literature in this area by examining the effect of all three institutional pressures on the changes in QM practices within a developing economy.

The analysis revealed that the institutional environment led Company A to change its QM practices over time. This institutional environment was significantly influenced by factors such as retailers' pressure associated with the increased competition following the removal of the MFA, directives from top management and pressure from garment associations. Hence, the study reveals that the changes in the QM practices in Company

A were the direct consequences of changes in the institutional environment. Specifically, Company A introduced various changes in its QM practices in order to meet the expectations of the institutional environment and to gain legitimacy.

The institutional pressures enabled Company A to identify its underlying deficiencies in respect to QM practices, and to improve its product quality and lower the cost of product in an attempt to satisfy its retailers. The coercion by retailers highlighted the changes in quality required and resulted in a number of measures taken by Company A including the appointment of a Board of directors and a Manager of quality assurance. Following these changes, Company A focused more on quality oriented objectives, including increases in efficiency, productivity and reductions in wastage and defect rates, as well as the adoption of new technologies and machines. The management of the organisation increasingly realised the need to focus on quality, and QM came to be used in routine organisational practices. More importantly, QM practices were used to ensure greater accuracy and conformity in the products produced which ultimately promoted a culture of continuous improvement within the company.

The study demonstrates that while three distinct forms of institutional pressures (coercive, mimetic and normative) were found to have affected the changes in QM practices, the nature and intensity of the institutional pressures changed over the period of analysis. For instance, initially the phase out of the MFA resulted in a free market and more opportunities for retailers. The resultant change influenced retailers' requirement in respect to quality which subsequently forced Company A to introduce changes in the QM practices employed. The pressure from retailers as well as directives

from top management led Company A to adopt QM practices including QC, QCC's, and on line quality checking. Furthermore, following the global financial crisis, the retailers were under immense pressure from end customers in relation to price which subsequently resulted in Company A introducing JIT in order to reduce cost. Moreover, the demand for more complex quality inspection, and for a larger volume of products of high quality and at a competitive price, led Company A to adopt TQM.

The analysis also suggests that mimetic pressures arose due to the increased level of competition, with company A imitating various technologies and QM practices such as automation systems, CAD and the QA systems of other successful firms in order to improve quality. Normative pressures also influenced the QM practices further through the influence of garment associations', and the introduction of quality training and top management support.

The findings show that the changes in Company A's QM practices were a planned and rationally executed endeavour. The newly appointed Director of Planning, the Manager of Quality Assurance and external consultants played a crucial role in the change process. Their knowledge, experience and commitment, helped the company in developing its quality practices in the right direction. In particular, the Director of Planning and manager of quality assurance brought several changes including the set-up of a modern laboratory, and the adoption of appropriate technologies.

The findings have a number of important implications for managers of garments operating in developing economies. First, the changes experienced in Company A serve to make managers of other garment organisation aware of the need to adopt similar QM

practices in order to improve the quality of their products. Second, the findings provide an insight into the major institutional pressures influencing changes in QM practices within developing economy garment organisations. These findings may help managers to anticipate the institutional pressures and their subsequent impact on QM adoption, thereby facilitating better adaptation to such pressures. Finally, while the current study focuses on QM practices, the findings may provide managers an insight into how to adapt to institutional pressures to adopt other management practices.

7. Limitations and future directions

The case study was conducted in a single company, utilising relevant document analysis and interview data collected from sixteen participants. Accordingly, the results are not generalisable to other industries and future research may replicate the study's findings in different research sites and using a broader range of data. While there was an underlying risk of missing valuable information due to the inability of respondents to recall events, the researchers were able to minimise this threat to reliability through the use of multiple data sources. Finally, while this study addresses the influences of institutional pressures on QM practices, future studies may explore additional perspective such as the influences of such pressures on other management accounting practices.

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CHAPTER FOUR

PAPER TWO

**The association between organisational related factors, TQM
adoption, and competitive advantage**

Abstract

This study presents an empirical analysis of the association between organisational related factors (information technology, intensity of market competition, Expert Systems and the supplier evaluation programmes) and the adoption of TQM using Kaynak's (2003) core TQM practices (quality data and reporting, supplier quality management, product/service design, process management) model. In addition, the study examines the association between these four core TQM practices with each other and with competitive advantage. The study uses data obtained from a survey of 673 business units of garment organisations in a developing economy, Bangladesh. The findings indicate that three organisational related factors (intensity of market competition, information technology, and Expert Systems) were significantly associated with the adoption of TQM. While all four TQM practices were found to be interrelated with each other, only two of these practices (supplier quality management and product/service design) were found to assist in enhancing competitive advantage. The findings provide an important insight into the use and value of TQM practices for developing economies.

Keywords

TQM adoption, organisational related factors, competitive advantage

1. Introduction

Increasing competition is challenging organisations to adopt strategic initiatives which enable them to better serve customers through the provision of higher quality products and services (Duh et al., 2012). In response, researchers and practitioners have directed their focus to the adoption of management techniques such as Total Quality Management (TQM) (Cheng, 2009; Wayhan and Balderson, 2007). TQM is a management philosophy that focuses on improving the quality of goods and services, meeting customer expectations and organisational objectives through integrating organisational functions (Dubey and Gunasekaran, 2014; Hashmi, 2005). It encompasses elements such as leadership and commitment, employee involvement, communication, recognition and continuous improvement (Kim et al., 2012; Jalahma and Gallear, 2010).

The literature reveals several benefits of adopting TQM including productivity improvements, cost reductions, minimisation of defects, and improvements in quality and overall performance (Haar and Spell, 2008; Sharma and Kodali, 2008; Abas and Yaacob, 2006). However, there have also been mixed results regarding the success of TQM. For instance, while Taylor and Wright (2003) and Sohal and Terziovski (2000) highlight the success associated with using TQM, other studies refer to the problems associated with adopting TQM including the lack of basic infrastructure, ineffective implementation steps or strategies, incompatible organisational structure, a weak quality-oriented culture, and poor planning and insufficient training on quality issues (Mosadeghard, 2014; Wardhani et al., 2009; Buranajarukorn et al., 2006; Terziovski and Samson, 2000). These mixed findings have led researchers to focus on investigating the contextual factors that affect TQM adoption, with Ehigie and McAndrew (2005)

suggesting that the adoption of TQM is dependent on the organisational context. The main stream of TQM research has focused on examining the influence of contingency factors on TQM adoption (Wanderi, et al., 2015; Al-Omiri, 2012; Duh et al., 2012; Sousa and Voss, 2008, 2001; Sila, 2007). Specifically, in this respect, studies have focused on factors such as information technology (Al-Omiri, 2012), market competition (Duh et al., 2012; Al-Omiri, 2012; Wali and Boujelbene, 2009) and organisational characteristics such as size and ownership (Sousa and Voss, 2001; Sila, 2007). This study aims to extend this contingency literature by focusing on the association between four organisational related factors (information technology (IT), intensity of market competition, Expert Systems (ESs) and the supplier evaluation programmes) and the adoption of TQM. The existing literature suggests that these factors either increase the likelihood that an organisation will adopt TQM practices and/or facilitate the implementation of quality management (QM) practices. For example, the intensity of market competition places pressure on organisations to enhance product and service quality in order to increase customer satisfaction (Chong and Rundus, 2004). IT facilitates the provision of quality information which can be used to manage the activities of supply chain members and customers, to manage production schedules and to improve the quality of products and services (Brah and Lim, 2006). ESs consist of computer programs that assist organisation in decision making, effective training and allocating resources (Eom and Karathonas, 1996; Metaxiotis et al., 2002), while supplier evaluation programmes ensure supplier quality (Giunipero and Brewer, 1993) by conducting regular supplier audits and providing feedback on suppliers' performance (Zhang et al., 2000).

While previous studies have examined the association between IT (Al-Omiri et al., 2012; Lorente et al., 2004) and the intensity of market competition (Duh et al., 2012; Al-Omiri, 2012; Chong and Rundus, 2004) with TQM adoption, no study has examined the association between ESs and supplier evaluation programmes with TQM adoption. In addition, with the exception of studies examining the impact of IT, the majority of studies have focused on the effect of such factors on the overall adoption of TQM. Accordingly, this study aims to provide a more detailed insight into these relationships by operationalising TQM adoption in respect to the extent of use of Kaynak's (2003) four core TQM practices including quality data and reporting, supplier quality management, product/service design, and process management. The study examines the association between each of the four organisational related factors (IT, intensity of market competition, ESs, supplier evaluation programmes) and Kaynak's four core TQM practices. In addition, the study also aims to extend the literature examining the effectiveness of TQM practices. Specifically, while the majority of studies have assessed the effectiveness of TQM based on organisational performance (Duh et al., 2012; Baird et al., 2011; Rahman and Bullock, 2005; Kaynak, 2003), this study aims to extend the literature by examining TQM effectiveness in respect to a qualitative aspect, competitive advantage.

Many studies reveal that the adoption of TQM increases organisational commitment to quality and enhances competitive position (Fotopoulos and Psomas, 2009; Sharma and Kodali, 2008). It is claimed that TQM is a fundamental source of competitive advantage which results from improved products or services, reduced costs, and faster delivery time (Powell, 1995). For example, the TQM practice 'product/service design' reduces costs by eliminating non-value added parts which in turn makes products easier to

produce. Efficient 'process management', which arises from experience curve effects and learning, also reduces costs. TQM practices such as 'supplier quality management' affect various aspects of competitive advantage through cost, price, quality, delivery, time to market and product development (Li et al., 2006). Finally, 'quality data and reporting' facilitates supplier quality management through information sharing, thereby enhancing product quality (Li et al., 2006).

While there are a number of studies which have examined the association between the use of TQM and competitive advantage (Shenawy et al., 2007; Tena et al., 2001; Douglass and Judge, 2001; Reed et al., 2000), this study aims to provide a comprehensive insight by examining the association between the extent of TQM adoption operationalised using Kaynak's core TQM practices model and competitive advantage. The use of Kaynak's (2003) core TQM practices model will enable the identification of both direct and indirect relationships between TQM and competitive advantage.

Hence, this study addresses the following two objectives:

1. To examine the association between specific organisational related factors and the extent of adoption of TQM.
2. To examine the association between the adoption of TQM practices and competitive advantage.

While many studies have investigated the extent of TQM adoption and its impact, most of these studies reflect the experiences of organisations in developed economies (Baird et al., 2011; Kumar et al., 2011; Kaynak, 2003; Samson and Terziovski, 1999; Kaynak,

1993; Adam et al., 1997; Ahire et al., 1996; Powell, 1995), with only a few focusing on developing economies (Hassan et al., 2014; Lee, 2004). The focus on a developing economy such as Bangladesh is considered important due to the unique environmental conditions including the standard of living, level of labour productivity, the degree of market failure and the significant import and export growth rate (Mersha, 1997). In addition, developing economies differ from that of developed economies in terms of increases in trade and capital flows (Citigroup, 2010). Accordingly, this study focuses on the garment industry in a developing economy, Bangladesh.

The garment industry was chosen because of its leading position in the export market and its enhanced focus on quality. Moreover, following the recent Rana Plaza collapse where around 1,100 people died (Burke, 2013), there has been increased attention placed on improving quality and implementing safer working conditions in this industry in Bangladesh. The findings contribute to the TQM literature by providing an insight into the adoption and relevance of TQM within developing economies. In particular, the study provides an insight into the effect of organisational related factors in enhancing TQM and the importance of TQM for competitive advantage.

The remainder of the paper is structured as follows: Section 2 provides a literature review and the hypotheses development. Section 3 then discusses the research method and the measurement of the variables. Section 4 then outlines the results and Section 5 provides the discussion and conclusion. Finally, Section 6 discusses the limitations and future directions for research.

2. Literature review and hypotheses development

TQM is a management philosophy which involves an organisational commitment to continuously improve and meet the needs of customers (Kumar et al., 2009; Joseph et al., 1999). It involves a fundamental change in the way organisations manage systems, empower employees, focus on customers, and adopt a set of effective management techniques (Yeung et al., 2006). The TQM principles have been cited by many authors and encompass elements such as management leadership and continuous improvement (Kim et al., 2012; Jalahma and Gallear, 2010). Kaynak (2003) indicates that TQM consists of four core practices including quality data and reporting, supplier quality management, product/service design, and process management, with an organisation's extent of TQM adoption indicated by the combined extent of use of these four core practices. Quality data and reporting indicates the "monitoring and keeping of quality data" (Gotzamani and Tsiotras, 2001, p.1334). Supplier quality management is related to maintaining a close and cooperative relationship with a small number of suppliers (Kaynak, 2003). Product/service design refers to "the clarity of the product and process design specifications, in the totality of the new products tests and inspection before entering the market" (Gotzamani and Tsiotras, 2001, p.1336). Process management refers to the "development, standardisation and documentation of those processes that directly affect quality" (Gotzamani and Tsiotras 2001, p.1334). While previous studies have examined the overall adoption of TQM by asking respondents whether they use TQM or not, this study assesses TQM adoption as the combined use of Kaynak's (2003) four core TQM practices to provide a more detailed view of the use of TQM practices. Moreover, while previous studies which have utilised Kaynak's (2003) model have focused on developed economies, this study contributes to the literature by providing a broader insight into the use of these practices in the context of a developing

economy.

2.1 The association between organisational related factors and the extent of TQM adoption

2.1.1 Information technology (IT)

“IT is any form of computer based information system, including mainframes as well as micro-computer applications”(Orlikowski and Gash, 1992, p.10).IT assists organisations through managing the activities of its supply chain members and facilitating improved relationships with customers, suppliers, and inventory management (Brah and Lim, 2006). IT enables quick information retrieval and transfers, and facilitates the application of advanced tools, systems and modelling techniques (Brah and Lim, 2006). As mentioned by Jabnoun and Sharaoui (2004), IT supports the adoption of TQM through assisting in strategic, human resource and technology areas. It is claimed that TQM relies on IT for improvements in the quality of products and services (Rodriguez et al., 2006). IT supports the adoption of TQM through improving relationships with suppliers and customers, enhancing team work, facilitating information flows between departments, improving process control and applying preventive maintenance (Lorente et al., 2004).

H1a. The use of IT is positively related to the extent of adoption of TQM.

2.1.2 Intensity of market competition

Competition is a key factor which organisations must respond to in order to survive and develop in the market (Duh et al., 2012). The high intensity of market competition facilitates improvement in operations and processes through the introduction of quality enhancement programs to satisfy customers (Chong and Rundus, 2004). It stimulates organisations to improve quality through adopting TQM which can assist managers to deal with competitor threats and challenges through better control of costs, production,

marketing and finance (Chong and Rundus, 2004). Specifically, TQM is more likely to be adopted in order to improve customer satisfaction. TQM provides improved products and services which eventually lead to higher customer satisfaction. Hence, market competition influences organisations to adopt TQM, with the potential benefits of addressing market competition outweighing the costs of TQM adoption (Duh et al., 2012).

H1b. The level of market competition is positively associated with the extent of TQM adoption.

2.1.3 Expert Systems (ESs)

“An Expert System is a computer program that attempts to embody the knowledge of an expert in some specific domain” (Liao et al., 2005, p. 315). ESs use the problem-solving knowledge of experts to identify organisational problems and to ensure the ready availability of information to all employees within the organisation. They are applicable to many organisational areas including marketing, finance, banking, and forecasting (Liao et al., 2005; Metaxiosis et al., 2002). ESs assist organisations in the design of TQM programs and developing TQM strategy (Nwankwo et al., 2002). ESs assist with aspects of TQM including statistical process control, quality costing, corrective action procedures, supplier development, quality function deployment (Crossfield and Dale, 1991). ESs facilitate better decision making and the efficient use of resources (Metaxiosis et al., 2002) which assists in implementing TQM. An ES is an excellent way to deliver high quality, timely, and relevant training (O’Connell and Week, 1995).

H1c. The use of ESs is positively associated with the extent of TQM adoption.

2.2 The association between organisational related factors and Kaynak's four core TQM practices

2.2.1 Information technology (IT)

Quality data and reporting involves the ready availability of information which emphasises quality related data including scrap, rework and the cost of quality (Lorente et al., 2004). IT supports quality data and reporting practices through providing quick and accurate information; improving communication between organisations, suppliers and customers; and facilitating the application of advanced tools and systems (Brah and Lim, 2006). Organisations use IT to collect data regarding the cost of quality and to facilitate the collection of quality related information in relation to production processes, employees, customers, suppliers, and quality performance (Rodriguez et al., 2006). Moreover, IT plays an important role in analysing data related to the flow of information between departments.

H2a. The use of IT is positively related to quality data and reporting.

IT is also critical for process management. It can be used in organisations for computerised production control. IT improves machinery maintenance due to its capability to detect maintenance needs, diagnose what needs to be done for maintenance, and carry out maintenance work at remote locations (Rodriguez et al., 2006; Lorente et al., 2004; Dewhurst et al., 2003). IT also assists organisations to schedule production activities and meet specific deadlines through using Computer Aided Production Planning (CAPP) and Enterprise Resource Planning (ERP) (Quesada et al., 2002). Furthermore, IT assists in the reduction of process variances, which results in quicker production processes and significant quality enhancement (Rodriguez et al., 2006). Implementing a centralised system for tracking supplier data, as well as other

relevant data, allows organisations to simplify reporting efforts and experience more efficient processes (Gupta and Margolis, 2011).

H2b. The use of IT is positively related to process management.

The use of IT facilitates communication between supply chain members, reduces cycle times and delivery times, and increases efficiency (Wu et al., 2006). IT facilitates communication with suppliers through Electronic Data Inter-change (EDI) systems (Gunasekaran and Nagi, 2004) which assists with placing orders, sending product specifications and design details, and the confirmation of invoices (Rodriguez et al., 2006). Supplier relationships are improved through easier access to information and quick data interchange. IT also helps to track supplier performance using periodic dashboard reports (Gupta and Margolis, 2011) which provide relevant information regarding each supplier in order to identify deficiencies in performance and identify ways to improve performance (Gustafsson and Karlsson, 2012).

H2c. The use of IT is positively related to supplier quality management.

Finally, Computer Aided Design (CAD) technologies facilitate the design process, resulting in quicker responses to customer needs (Dewhurst et al., 2003). In addition, the use of IT assists with the adoption of quality process design tools (Rodriguez et al., 2006). IT facilitates product design through sharing information among various departments as an effective medium (Rodriguez et al., 2006; Dewhurst et al., 2003). The use of IT improves design processes and design skills (Dewhurst et al., 2003) through the adoption of quality process design tools such as Quality Function Deployment (QFD) (Rangaswamy and Lilien, 1997).

H2d. The use of IT is positively related to product/service design.

2.2.2 Expert System (ESs)

Managing supplier quality is concerned with the identification, assessment and selection of suppliers (Chin et al., 2006). ESs help to evaluate and select potential suppliers and thereby enhance supplier quality (Nwankwo et al., 2002). ESs facilitate supplier quality management through developing an integrated supplier quality strategy, capturing supplier quality-related activities, and making decisions that assist organisations in achieving a more competitive position (Nwankwo et al., 2002). In addition, ESs provide numerous benefits in respect to managing supplier quality including quick information processing, improving quality, quicker decision making, simplifying the selection process, monitoring supplier quality, and identifying competent suppliers (Nwankwo et al., 2002).

H3a: The use of ESs is positively related to supplier quality management.

An ES is a knowledge-based management system which uses “preset algorithms” to develop solutions for identified problems (Malhotra, 2001). An ES has the ability to process large quantities of data resulting in the availability of more accurate and reliable quality data in a more timely manner (Nwankwo et al., 2002). ESs are developed based on the knowledge of experts, and are designed to produce high quality information that facilitates better quality decision-making (Liao et al., 2005).

H3b: The use of ESs is positively related to quality data and reporting.

Product design is a complex process, requiring many design factors and knowledge areas to be considered simultaneously (Chen and Occena, 2000). An ES is considered to be a viable tool for product design (Chen and Occena, 2000). An ES has the ability to

transform customer requirements into design requirements which enhance customer satisfaction and product quality. They are used to automate the design of numerous products in response to customer needs. ESs support the quicker design of products and improve quality to exceed customer expectations (Eom and Karathanos, 1996).

H3c: The use of ESs is positively related to product/service design.

Evidence reveals the ability of ESs to automate production functions including process planning, capacity planning, and controlling production and operation management systems. For example, Eom and Karathanos (1996) explain the use of an ES for automating process planning and identifying the resources needed. They cite the capability of ESs to bridge CAD and CAM systems through automatic conversion of the design specification of a product into a process plan (Eom and Karathanos, 1996). Hence, ESs contribute directly to productivity improvements and the on-time delivery of products.

H3d: The use of ESs is positively related to process management.

2.2.3 Supplier evaluation programmes

Supplier evaluations are essential in the process of supplier quality improvement (Kannan and Tan, 2002). In order to evaluate suppliers, organisations use specific indicators including price, quality, delivery, and other relevant performance measures and certifications (Chin et al., 2006; Zhang, 2000). Supplier quality management relies on the appraisal of a supplier's performance and supplier performance ratings, which provide a quantitative summary of supplier quality that can be used for necessary corrective action when needed (Chin et al., 2006; Juran and Gryna, 1980). In addition, involving suppliers in supplier development programs and providing regular feedback

on their performance improves supplier performance (Araz and Ozkarahan, 2007), thereby assisting with supplier quality management. Hence, an organisation's use of supplier evaluation programmes, consisting of supplier quality audits and a feedback system to provide information on supplier performance, provides the foundation for supplier quality management.

H4: The focus on supplier evaluation programmes is positively related to supplier quality management.

2.2.4 Intensity of market competition

Duh et al. (2012) argue that increased market competition influences firms to focus on customer preferences in regard to product and service design, thereby enhancing customer satisfaction. In order to respond to intense competition, firms must improve their existing operations and manufacturing (Al-Omiri, 2012). It is claimed that increased market competition pressures many organisations to emphasise customer focused product and service design to enhance customer satisfaction and gain a competitive advantage (Duh et al., 2012). Chong and Rundus (2004) suggest that quality-related investments in regard to product design are associated with increased market competition.

H5. Intensity of market competition is positively related to product/service design.

2.3 The association between Kaynak's core TQM practices with each other

2.3.1 Supplier quality management

Supplier quality management refers to the establishment of long term and reliable relationships with suppliers (Ho et al., 2010; Sharma and Kodali, 2008). A long term relationship with a few number of suppliers facilitates buyers' purchasing processes and ensures high quality products (Song and Lee, 2012). In addition, the involvement of

suppliers in product development and design, assists organisation in identifying suppliers' quality and solving problems more effectively (Araz and Ozkarahan, 2007). It also assists suppliers in obtaining suggestions regarding product/component simplifications (Kaynak, 2003). Suppliers' involvement also allows mutual problem solving through the involvement in the product design process and enables suppliers to design product features and quality standards (Baird et al., 2011). Suppliers' knowledge and experience contributes valuable suggestions to the design of new products and helps in achieving higher quality (Sharma and Kodali, 2008). Furthermore, the participation of suppliers at the product design process helps organisations to choose cost effective designs (Li et al., 2006).

H6a. Supplier quality management is positively related to product/service design.

The relationship with suppliers is directly related to process flow management as purchased materials and parts are a key source of process variability (Baird et al., 2011). As noted by Sharma and Kodali (2008), the delay in many products or processes are attributed to defects in incoming supplies. If the products are reliable and easy to use, this will provide benefits to the buyers by reducing their inspection process and improving production costs and production efficiency (Song and Lee, 2012).

H6b. Supplier quality management is positively related to process management.

2.3.2 Product/service design

As stated by Kaynak (2003), designing manufacturable products and designing quality into products is the core focus of product/service design. Many organisations use cross functional teams to simplify the product design process (Chase et al., 2001), which results in efficient process management through reductions in process complexity and

process differences (Kaynak, 2003). Effective product/service design is directly related to efficient process management (Kaynak and Hartley, 2008).

H6c. Product/service design is positively related to process management.

2.3.3 Quality data and reporting

QM is highly dependent on collecting and analysing quality information (Kaynak and Hartley, 2008; Nair, 2006). Quality data and reporting facilitates buyers to assess and monitor supplier performance including maintaining records of material quality, defect rates in parts produced, and supplier responsiveness (Baird et al., 2011). In addition, measuring suppliers' activities and providing feedback improves suppliers' performance (Kaynak and Hartley, 2008). A database on supplier performance measurement facilitates monitoring and assessing the performance of suppliers.

H6d. Quality data and reporting is positively related to supplier quality management.

Organisations relying on TQM place great emphasis on the design of quality products (Kaynak, 2003). The product/service design phase requires various information which is facilitated by quality data and reporting through the use of control charts to construct systematic information regarding the costs of poor quality (Baird et al., 2011). Quality data and reporting provides information on the cost of poor quality including rework, scrap, and warranty costs, thereby providing guidance on areas requiring correction (Baird et al., 2011). Collecting and disseminating quality data in a timely manner is crucial for effective product/service design (Kaynak and Hartley, 2008).

H6e. Quality data and reporting is positively related to product/service design.

An association between quality data and reporting and process management was not hypothesised as the literature doesn't support such an association.

2.4 The association between TQM adoption with competitive advantage

2.4.1 The adoption of TQM

Competitive advantage is a favourable position of an organisation which makes it different from competitors in the market because of its special capabilities (Li et al., 2006). Shenawy et al. (2007) found a significant association between the adoption of TQM and competitive advantage. The adoption of TQM improves product quality, reduces costs, enables faster delivery of products, reduces throughput time, and improves delivery performance (Sila, 2007; Powell, 1995), thereby assisting in achieving competitive advantage. In addition, TQM practices improve flexibility, for instance, workforce flexibility which enables an organisation to change its production volume quickly (Sila, 2007; Ahmad and Schroeder, 2002).

H7a. The adoption of TQM is positively related to competitive advantage.

2.4.2 Supplier quality management

It is argued that effective supplier quality management is crucial for enhancing product quality. A reliable supply chain enhances the quality of the final product through providing quality materials from competent suppliers (Baird et al., 2011). Effective supplier quality management practices reduce waste in the supply chain, thereby improving quality (Kaynak and Hartley, 2008). Supply chain management practices affect competitive advantage through cost, price, quality, delivery dependability, time to market and product innovation (Li et al., 2006).

H7b. Supplier quality management is positively related to competitive advantage.

2.4.3 Product/service design

Many organisations use product design as an important differentiation tool (Baird et al., 2011). Product/service design can reduce process complexity and process variance through using as few parts as possible and decreasing the variety of parts, thereby improving quality and reducing costs (Kaynak and Hartley, 2008). Using the optimum number of standardised parts increases the learning curve effect on employees, resulting in quality enhancement and cost reduction (Tan, 2001). In addition, the decreased number of components leads to decreased product-failure rates and increased reliability (Kaynak, 2003). Therefore, designing product features, reliability, serviceability and manufacturability into products should enhance quality performance and lead to competitive advantage.

H7c. Product/service design is positively related to competitive advantage.

Reduced process variance improves output uniformity and reduces rework and waste (Forza and Filippini, 1998) through the immediate detection and correction of quality problems (Kaynak, 2003). Regular preventive maintenance enhances product quality by improving machine reliability and reducing interruptions in production (Ahire and Dreyfus, 2000). Forza and Flippini (1998) showed that effective process management affects product quality directly and positively. The increased production quality leads to improved product quality, reduced costs and quick delivery (Kaynak, 2003), thereby assisting in enhancing competitive advantage. TQM practices standardise and improve processes, thereby enhancing competitive advantage.

H7d. Process management is positively related to competitive advantage.

3. Method

A questionnaire was mailed to the business unit managers of a random sample of 673 garment firms chosen from the directory of Bangladesh Garment Manufacturers and Exporters Association (BGMEA) and Bangladesh Knit Manufactures and Exporters Association (BKMEA). The mail survey approach was used as it has sample related advantages including broader geographic coverage and wider coverage within a sample population. The randomness of the sample was ensured through the use of a random number table to select respondents. The sample size was decided after considering the expected response rate, the requirements for performing statistical analysis and the survey cost. Dillman's (2007) Tailored Design Method was used to administer the survey. This approach provides guidelines regarding the style and format of questions, techniques to personalise surveys, and distribution procedures. Business units were considered as the unit of analysis because they are commonly analysed in the TQM literature (Kaynak and Hartley, 2008; Kaynak, 2003). Business unit managers were chosen as they were considered to have better knowledge about their specific business unit's quality management practices (Kaynak, 2003).

A total of 179 responses were received for a response rate of 28%. The response rate was higher than that achieved by Kaynak (2003) (20.3%) and many other TQM studies such as Sila (2007, [15.1 %]). In order to ensure the reliability of the data collected, 29 questionnaires that were completed by irrelevant managers were removed from the data set, leaving 150 remaining responses that were used to analyse the data. Table 1 reveals that the majority of the 150 managers were managing directors (17%) and production managers (16%). The majority (59%) of the business units had more than 1000

employees, while approximately half (51%) of the business unit had been in operation for 4 to 10 years and 37% had been in operation for 11 to 16 years (see Table 1).

3.1 Variable measurement

Details regarding the measurement of each variable is outlined below. As recommended by Schumacher and Lomax (1996) the construct validity of each variable was assessed using Confirmatory Factor Analysis (CFA). Four main elements, namely the significance of the standardised factor loading, the standardised error and t-statistics for each item, and overall fit indices (i.e. CMIN/DF, GFI and AGFI) were examined. The Appendix provides the statistics of the measurement analysis for each variable examined except 'expert systems' and 'supplier evaluation programs' which are single-item and two-item measures respectively. The CFA reveals that all of the constructs used for each variable exceed the recommended cut-off point for standardised factor loading (higher than or close to 0.5) and represent an overall good model fit.

3.1.1 Organisational related factors

IT was measured using Lorente et al.'s (2004) seven item measure with respondents required to indicate the extent to which their business unit: (i) uses Electronic Data Interchange with suppliers; (ii) uses Computer Aided Design; (iii) exchanges new design information between departments; (iv) uses IT to detect the need for machine maintenance; (v) uses IT to reduce process variance; (vi) uses IT to collect data about employees, customers and suppliers; and (vii) uses IT to collect data about production processes using a five-point Likert scale with anchors of 1 "not at all" and 5 "to a great extent". IT was measured as the average score of these seven items, with higher (lower) scores representing a higher (lower) extent of use of IT.

Market competition was measured using Mia and Clarke's (1999) five item measure with respondents required to indicate the intensity of market competition faced by their business unit in terms of (i) the number of major competitors; (ii) whether they frequently introduce new products; (iii) whether there is significant price manipulation; (iv) whether technological change is frequent in their industry; and (v) whether there is easy access to marketing channels using a five-point Likert scale with anchors of 1 "very low competition" and 5 "very high competition". Market competition was measured as the average score of these five items, with higher (lower) scores representing a higher (lower) extent of market competition. For ESs a single self-developed item was used with respondents required to indicate the extent to which ESs are used in their business unit after reading the following definition: an ES refers to "computer programs that attempt to imitate the reasoning process" (Benders and Manders, 1993, p.208) and Supplier evaluation programmes was measured using Zhang et al.'s (2000) two item measure with respondents required to indicate the extent to which their business unit: (i) regularly conducts supplier quality audits; and (ii) their business unit regularly gives feedback on the performance of suppliers products using a five-point Likert scales with anchors of 1 "not at all" and 5 "to a great extent". Supplier evaluation programmes was measured as the average score of these two items, with higher (lower) scores indicating that the practice was used to a greater (lesser) extent.

3.1.2 TQM practices

The extent of TQM adoption was assessed using Kaynak's (2003) core TQM practices model. Each of these core practices were measured using the same questions used by Baird et al. (2011) with respondents required to indicate the extent to which each

practice was adopted using five-point Likert scales with anchors of 1 “not at all” and 5 “to a great extent”.

Each practice was measured as the average score of the items, with higher (lower) scores indicating that the practices were used to a greater (lesser) extent. Quality data and reporting was measured using four measures with respondents required to indicate the extent to which quality data is available; quality data is timely; quality data is accurate and reliable; and quality data is used to manage quality. Supplier quality management was measured using five measures with respondents required to indicate the extent to which: suppliers are offered long-term relationships; the number of suppliers has been reduced since the implementation of quality management; suppliers are selected based on their quality rather than the price or delivery schedule; the suppliers rating system is thorough; and suppliers are integrated into the product/service development process.

Product /service design was measured using four measures with respondents required to indicate the extent to which product/service design reviews are carried out before products/service is produced or marketed; departments involved in the product/service design are coordinated; the quality of new products/services are emphasized in relation to cost or schedule objectives; and the ease of production /implementation is considered in the product/service design process.

Process management was measured using four measures with respondents indicating the extent to which inspection, reviews, or checking of work, is automated; production

schedule/work distribution is stable; the production process is automated; and production processes are designed to minimise the chances of employee errors.

The extent of TQM adoption was evaluated in respect to the extent to which the four dimensions of TQM (quality data and reporting, supplier quality management, product/service design, and process management) were used. Specifically, the extent of TQM adoption was scored as the sum of the average score of each of these four dimensions with higher (lower) scores indicating that TQM practices were adopted to a greater (lower) extent.

3.1.3 Competitive advantage

Competitive advantage was measured using Flynn et al.'s (1995) five item measure with respondents required to rate the performance of the business unit in terms of the unit costs of manufacturing, fast delivery of products, flexibility in changing the volume of production, inventory turnover, and cycle time (from receipt of raw materials to shipment) compared to their competitors using a five point-Likert scale with anchors of 1 "worse than competitors" and 5 "better than competitors". Competitive advantage was measured as the average score of these five items, with higher (lower) scores indicating that competitive advantage was achieved to a greater (lower) extent.

4. Results

4.1 Descriptive statistics

Table 2 provides the descriptive statistics for the independent and dependent variables. For the multi-item scales the actual range was comparable with the theoretical range. All the Cronbach alpha coefficients exceeded the 0.70 threshold considered acceptable for scale reliability (Nunnally, 1978, p. 245).

In respect to the extent of TQM adoption, the scores for the use of the four TQM dimensions (quality data and reporting mean = 4.30, supplier quality management mean = 4.15, product/service design mean = 4.27 and process management mean = 4.10) indicate that the extent of adoption of TQM in the Bangladeshi garment industry is high.

Table 1: Descriptive Statistics

| | Job Title | | | | | | 500-999 | Size (no. of employees) | | | Length of operation | | |
|-------------------|------------------|-------|----|----|----|-------|---------|--------------------------------|-----------|----------------|----------------------------|-------------|------------|
| | MD | QA/QC | PM | CM | MM | Other | | 1000-1999 | 2000-2999 | 3000 and above | 4-10 years | 11-16 years | 17 – above |
| No. of respondent | 26 | 23 | 28 | 17 | 16 | 40 | 56 | 64 | 18 | 12 | 77 | 55 | 18 |
| % | 17 | 15 | 19 | 11 | 11 | 27 | 37 | 43 | 12 | 8 | 51 | 37 | 12 |

Notes: percentage out of 150 usable respondent; Job Title: MD-Managing Director; QA/QC-Quality Assurance/Quality Control Manager; PM-Production Manager; CM-Compliance Manager; MM-Merchandise Manager.

4.2 The association between organisational related factors, the extent of TQM adoption, and competitive advantage

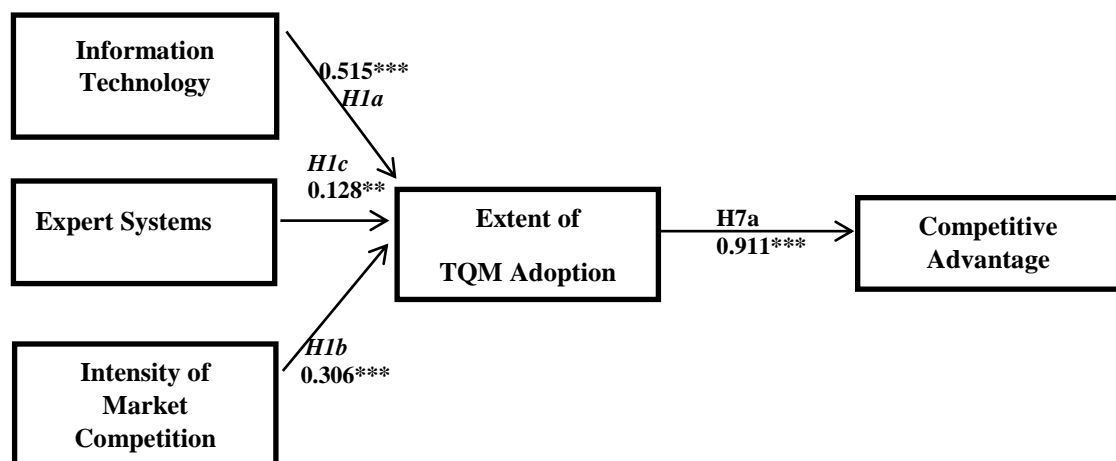
Structural Equation Modeling (SEM) was used to analyse the data using the AMOS software. Specifically, a structural equation model was used to examine the association between the four organisational related factors and the extent of TQM adoption and competitive advantage. In line with Anderson and Gerbing (1988), paths that were not statistically significant were removed from the hypothesised model until all remaining paths in the model were significant and the overall (reduced) model was a good fit.

Table 2: Descriptive statistics

| Variables | Mean | SD | Minimum actual/ Theoretical | Maximum actual/ Theoretical | Cronbach's α |
|---------------------------------------|------|------|-----------------------------------|-----------------------------------|---------------------|
| TQM | | | | | |
| Quality data and reporting | 4.30 | 0.83 | 1.75 (1) | 5(5) | 0.96 |
| Supplier quality management | 4.15 | 0.76 | 2 (1) | 5(5) | 0.90 |
| Product/service design | 4.27 | 0.72 | 2 (1) | 5(5) | 0.94 |
| Process management | 4.10 | 0.83 | 2 (1) | 5(5) | 0.95 |
| Extent of adoption of TQM | 4.22 | 0.73 | 1.94 (1) | 5(5) | 0.93 |
| Organisational related factors | | | | | |
| Information technology | 3.84 | 0.90 | 1.29 (1) | 5(5) | 0.94 |
| Intensity of market competition | 3.86 | 0.60 | 2.6 (1) | 5(5) | 0.81 |
| Expert systems | 3.20 | 1.37 | 1 (1) | 5(5) | - |
| Supplier evaluation programmes | 3.84 | 0.91 | 1.5 (1) | 5(5) | 0.81 |
| Competitive advantage | 3.96 | 0.88 | 1.8 (1) | 5(5) | 0.95 |

Figure 1 and Table 3 reveal the association between the hypothesised organisational related factors (information technology, intensity of market competition, and Expert Systems) with the adoption of TQM. The fit indices¹⁰ (CMIN/DF=2.673; GFI=0.988; AGFI=0.912; CFI=0.993; NFI=0.989) indicate a good fit of the model. All three organisational related factors including IT ($\beta=0.515$, $p=0.000$), ESs ($\beta=0.128$, $p=0.012$) and the intensity of market competition ($\beta=0.306$, $p=0.000$) were found to be significantly and positively associated with the extent of TQM adoption, providing support for Hypotheses 1a, 1b and 1c. In addition, Figure 1 shows that the extent of TQM adoption is significantly and positively associated with competitive advantage ($\beta=0.911$, $p=0.000$), thereby providing support for hypothesis 7a.

Figure 1: The association between organisational related factors, the extent of TQM adoption, and competitive advantage



¹⁰Values of CFI \geq .95, NFI \geq .95, GFI \geq .90 and AGFI \geq .90 (Hooper et al., 2008; Hu and Bentler, 1999) are considered to be good.

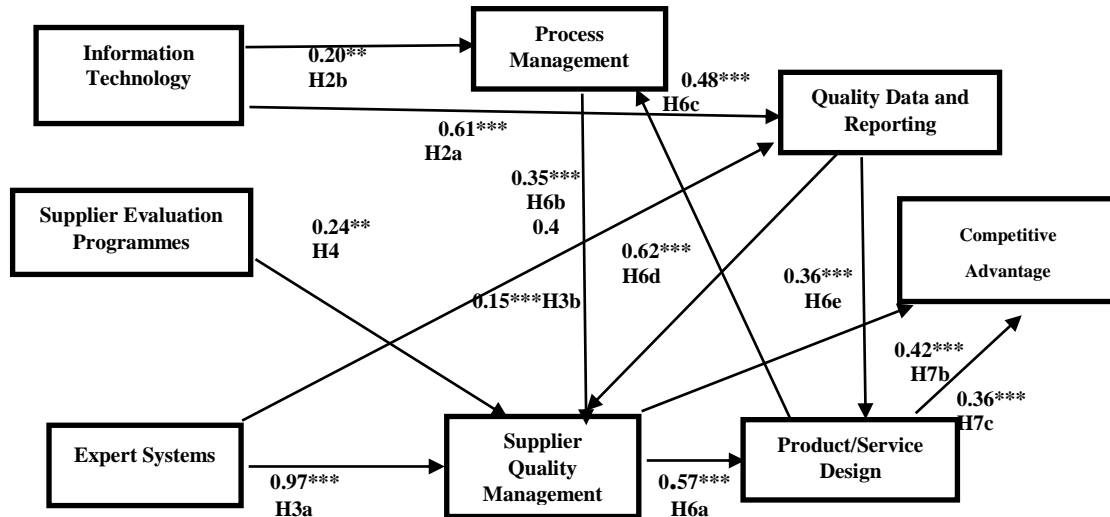
Table 3: Analysis of significant paths between organisational related factors, the adoption of TQM and competitive advantage

| <u>Regression Path</u> | Standardised beta | Standardised error | Critical ratio | P-value |
|---|------------------------------|-------------------------------|---------------------------|----------------|
| Information technology→ TQM adoption | 0.515 | 0.102 | 9.736 | 0.000 |
| Expert systems →TQM adoption | 0.128 | 0.451 | 2.507 | 0.012 |
| Intensity of market competition →TQM adoption | 0.306 | 0.216 | 5.980 | 0.000 |
| TQM adoption→ Competitive advantage | 0.911 | 0.022 | 14.508 | 0.000 |
| <u>Goodness of Fit Statistics</u> | | | | |
| CMIN/DF | | 2.673 | | |
| GFI | | 0.988 | | |
| AGFI | | 0.912 | | |
| CFI | | 0.993 | | |
| NFI | | 0.989 | | |

4.3 The association between organisational related factors, Kaynak's core TQM practices and competitive advantage

Structural equation modeling was also used to examine the association between the hypothesised organisational related factors (IT, supplier evaluation programmes and intensity of market competition) and Kaynak's (2003) core TQM practices (quality data and reporting, supplier quality management, product/design, process management), the association of Kaynak's core TQM practices with each other, and their association with competitive advantage. The fit indices (CMIN/DF=3.062; GFI=0.957; AGFI=0.870; NFI=0.972; CFI=0.981) indicate a good fit of the model (see figure 2).

Figure 2: The association between organisational related factors, core TQM practices and competitive advantage



4.3.1 The association between organisational related factors and Kaynak's core TQM practices

Table 4 reveals that a significant positive association exists between IT with both quality data and reporting ($\beta=0.618$, $p=0.000$) and process management ($\beta=0.205$, $p=0.011$) providing support for hypotheses 2a and 2b. There was no association found between IT with supplier quality management and product/service design, therefore resulting in the rejection of hypotheses 2c and 2d. Table 4 shows a positive relationship between both the use of a supplier evaluation programmes ($\beta=0.243$, $p=0.032$) and ESs ($\beta=0.097$, $p=0.000$) with supplier quality management, thereby providing support for hypotheses 3a and 4. Table 4 also indicates an association between ESs and quality data and reporting ($\beta=0.156$, $p=0.000$), thereby providing support for hypothesis 3b. However, was no association found between ESs with product/service design an process management, resulting in the rejection of hypotheses 3c and 3d. Hypothesis 5

was also rejected as there was no association found between the intensity of market competition and product/service design.

4.3.2 The association between Kaynak's core TQM practices with each other

Table 4 shows the associations between Kaynak's core TQM practices (quality data and reporting, supplier quality management, product/service design and process management). All of the hypotheses in this regard were supported which is consistent with previous findings (Kaynak, 2003). Specifically, Table 4 reveals that supplier quality management is associated with product/service design ($\beta=0.577$, $p=0.000$) and process management ($\beta=0.352$, $p=0.000$) providing support for hypotheses 6a and 6b. In addition, the positive association between product/service design and process management ($\beta=0.408$; $p=0.000$) provides support for H6c. In respect to quality data and reporting both hypotheses were supported (6d and 6e) with Table 4 revealing that a positive association exists between quality data and reporting with supplier quality management ($\beta=0.624$, $p=0.000$) and product/service design ($\beta=0.367$, $p=0.000$).

4.3.3 The association between Kaynak's core TQM practices with competitive advantage

Table 4 shows the association between the core TQM practices and competitive advantage. It is shown that a positive association exists between supplier quality management ($\beta=0.429$; $p=0.000$) and product/service design ($\beta=0.360$; $p=0.000$) with competitive advantage, thereby providing support for hypotheses 7b and 7c. No association was found between process management with competitive advantage, resulting in the rejection of hypothesis 7d.

Table 4: Analysis of significant paths between organisational related factors, the Kaynak's core TQM practices and competitive advantage

| <u>Regression Path</u> | Standardised beta | Standardised error | Critical ratio | P-value |
|---|------------------------------|-------------------------------|---------------------------|----------------|
| Information technology→ Quality data and reporting | 0.618 | 0.030 | 10.103 | 0.000 |
| Information technology →Process management | 0.205 | 0.024 | 4.417 | 0.011 |
| Expert Systems →Quality data and reporting | 0.156 | 0.138 | 2.553 | 0.000 |
| Expert Systems→Supplier quality management | 0.097 | 0.123 | 2.139 | 0.000 |
| Supplier evaluation programmes→ Supplier quality management | 0.243 | 0.108 | 4.617 | 0.032 |
| Quality data and reporting→Supplier quality management | 0.624 | 0.063 | 11.901 | 0.000 |
| Quality data and reporting→Product design | 0.367 | 0.052 | 6.424 | 0.000 |
| Supplier quality management→Product design | 0.577 | 0.043 | 10.106 | 0.000 |
| Supplier quality management→Process Management | 0.352 | 0.066 | 4.626 | 0.000 |
| Product design→Process management | 0.408 | 0.086 | 5.469 | 0.000 |
| Product design→Competitive advantage | 0.360 | 0.157 | 3.541 | 0.000 |
| Supplier quality management→Competitive advantage | 0.429 | 0.118 | 4.227 | 0.000 |
| <u>Goodness of Fit Statistics</u> | | | | |
| CMIN/DF | | 3.062 | | |
| GFI | | 0.957 | | |
| AGFI | | 0.870 | | |
| CFI | | 0.981 | | |
| NFI | | 0.972 | | |

5. Discussion and conclusion

The study had two objectives, the first of which was to examine the association between organisational related factors and the extent of adoption of TQM in Bangladeshi organisations. The findings indicate that three organisational related factors (IT, ESs and intensity of market competition) exhibit a significant positive association with the extent of adoption of TQM. The finding that IT is significantly associated with TQM adoption is consistent with the findings in Lorente et al. (2004), suggesting the importance of establishing a supportive IT environment in promoting the adoption of TQM. In addition, in line with Lorente et al. (2004) the results reveal that IT is positively associated with both quality data and reporting and process management. Such findings highlight the importance of IT in supporting communication between the members of organisations and suppliers through EDI, and improving production processes by minimising process differences. These findings also emphasise the significant role of IT in providing an integrated system that is conducive to the implementation of TQM practices. Therefore, managers could consider the effect of IT in collecting, maintaining and analysing quality related data, and reducing process variances, and devote more time to develop IT infrastructure to assist quality practices.

A significant association was also found between the use of ESs and the adoption of TQM. This finding suggests that organisations could place attention on the use of ESs as they assist TQM adoption through facilitating training, effectively designing products, and assisting with decision making regarding the allocation of resources. The findings further suggest that organisations should emphasise the use of ESs given their association with quality data and reporting, and supplier quality management.

Specifically, by using ESs, managers can deal with numerous data relating to quality management decisions and supplier quality, thereby improving the overall quality of products. These findings reinforce the important role that ESs plays in supporting TQM practices. Managers need to be aware of the benefits of ESs in order to effectively manage organisational processes under dynamic conditions, and may benefit from investing in this technology.

In respect to market competition, a significant association was found between the intensity of market competition and the adoption of TQM which is consistent with Duh et al. (2012). This finding suggests that the intensity of market competition influences organisations to adopt TQM in order to improve the quality of products, introduce new products and set competitive prices. Therefore, organisations can use TQM as a competitive tool in order to produce more customer oriented products, thereby satisfying customers.

The study also examined the association between the core TQM practices with each other with the results indicating that quality data and reporting is positively associated with supplier quality management and product/service design. Accordingly, organisations should devote more effort to collecting and disseminating quality related data in order to track supplier quality as well as facilitating product/service design. For example, in order to facilitate quality data and reporting systems, managers can invest in technologies such as IT and ESs to collect, store and disseminate quality data quickly, thereby assisting TQM practices. In addition, a positive association was found between supplier quality management with product/service design and process management which is consistent with the results of Kaynak (2003) in the USA and

Baird et al. (2011) in Australia. In this respect, managers of organisations may involve suppliers in the product/service design process which in turn will allow product simplification, thereby reducing process complexity and improving product quality. In addition, suppliers' control improves process management by increasing complexity (eg. using efficient automated systems) to enhance a products' usefulness for customers. Furthermore, ESs and supplier evaluation programs are associated with supplier quality management, it is recommended that organisations should employ ESs to identify and assess possible suppliers and arrange regular monitoring of suppliers activities and provide feedback on their performance, thereby enabling suppliers to undertake immediate corrective actions when required. Further, the findings revealed a positive association between product/service design and process management which is consistent with Kaynak's (2003) findings. In line with this, managers should ensure quality during the product/service design by developing design teams, and using design tools such as quality function deployment and concurrent reengineering in order to reduce production/process complexities. Specifically, if organisations can improve the quality of product/service design, this could reduce process variability to a greater extent, thereby resulting in improved quality.

The second objective of the study was to provide an insight into the association between Kaynak's core TQM practices and competitive advantage. The results showed a significant positive association between TQM adoption and competitive advantage which is consistent with the results of Shenawy et al. (2007) and highlights the importance of using TQM to achieve competitive advantage. Accordingly, to encourage the adoption of TQM, managers can focus on maintaining quality data, improving relationship with suppliers, ensuring the quality of product/service design, and reducing

process complexities, which in turn will lead to competitive advantage. This finding will motivate garment organisations to adopt TQM in order to gain competitive advantage.

In addition, the study contributes to the literature by examining the association between each of Kaynak's (2003) core TQM practices and competitive advantage. Specifically, two core TQM practices, namely supplier quality management and product/service design were found to be positively associated with competitive advantage. Accordingly, to develop competitive advantage it is important for organisations to concentrate on developing a long trustworthy relationship with its suppliers, and improve suppliers' performance through quality audits and performance feedback, thereby improving supplier quality management. Furthermore, managers could allocate more resources to product/service design in order to achieve competitive advantage. In line with this, managers could concentrate on design simplification and the manufacturability of products which eventually reduces production complexities, thereby improving quality. In addition, two organisational related factors, supplier evaluation programme and ESs were found to be indirectly associated with competitive advantage through supplier quality management and product/service design. This finding highlights the important association of organisational related factors in achieving competitive advantage. Hence, the outcome of TQM adoption is not only derived from the TQM core practices, but is also a result of the indirect association of specific organisational related factors. Accordingly, managers need to realise the important association of these factors in achieving competitive advantage. In respect to this, managers should improve supplier evaluation programmes through providing regular feedback on their activities and

developing an expert reporting system. Moreover, managers should develop skills and technologies to maximise the benefits of the use of ESs.

The findings have some important implications regarding the quality improvement programs of managers of organisations in developing economies. Specifically, managers need to recognise TQM as a holistic approach rather than a one dimensional quality improvement program (Baird et al., 2011). In addition, managers should emphasise organisational related factors as they play an important role in TQM adoption. In addition, managers may also need to emphasise the interdependencies between core TQM practices and their association with competitive advantage, particularly, while planning and developing strategies to adopt a TQM program. Overall, the findings provide a comprehensive insight into TQM adoption and its associated benefits which can provide guidelines and motivate managers of garment organisations in developing economies in planning and implementing their quality management programs.

6. Limitations and suggestions for future research

The study has certain limitations. First, as the data was gathered via mail survey questionnaire there is a lack of control over who actually completed the survey and an inability to ascertain causality. Such concerns were alleviated to some extent by using Dillman's (2007) Tailored Design Method. Future research could extend this study using different methodologies including, interviews, field studies or longitudinal case studies. Secondly, the study may be subject to response bias as it relies on business units' self-reported data. However, as the respondents were guaranteed anonymity in the survey process, the problem of social desirability bias is likely to have been

minimised. Future studies could be undertaken in other developing nations to further examine the generalisability of Kaynak's (2003) model. Thirdly, data was only collected from the garment industry, so the results may not be generalised to other industries, especially non-manufacturing organisations. Future research may also extend the current analysis by investigating the association between additional organisational related factors and competitive advantage.

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Appendix: CFA Results

(The first item of each scale has no t-value since it has a fixed parameter in AMOS)

Information system

| Items | Standardised loading | Standardised error | T-value |
|--|-------------------------|-----------------------|---------|
| Uses Electronic Data Interchange with suppliers | 0.844 | | |
| Uses Computer Aided Design | 0.702 | 0.075 | 12.931 |
| Exchanges new design information between departments | 0.713 | 0.050 | 12.773 |
| Uses IT to detect the need for machine maintenance | 0.720 | 0.077 | 11.325 |
| Uses IT to reduce process variance | 0.934 | 0.058 | 17.389 |
| Uses IT to collect data about employees, customers and suppliers | 0.947 | 0.057 | 17.844 |
| Uses IT to collect data about production | 0.956 | 0.066 | 15.908 |
| <u>Goodness of Fit Statistics*</u> | | | |
| CMIN/DF | | 2.48 | |
| GFI | | 0.97 | |
| AGFI | | 0.97 | |
| Composite reliability | | 0.942 | |

Market competition

| Items | Standardised loading | Standardised error | T-value |
|--|-------------------------|-----------------------|---------|
| The number of major competitors | 0.51 | | |
| Whether they frequently introduce new products | 0.65 | 0.205 | 6.918 |
| Whether there is significant price manipulation | 0.73 | 0.256 | 5.931 |
| Whether technological change is frequent in their industry | 0.82 | 0.245 | 6.037 |
| Whether there is easy access to marketing channels | 0.52 | 0.224 | 4.966 |
| <u>Goodness of Fit Statistics*</u> | | | |
| CMIN/DF | | 2.652 | |
| GFI | | 0.976 | |
| AGFI | | 0.910 | |
| Composite reliability | | 0.787 | |

Supplier quality management

| Items | Standardised loading | Standardised error | T-value |
|--|-------------------------|-----------------------|---------|
| Suppliers are offered long-term relationships | 0.808 | | |
| The number of suppliers has been reduced since the implementation of quality management | 0.788 | 0.109 | 11.551 |
| Suppliers are selected based on their quality rather than the price or delivery schedule | 0.797 | 0.095 | 11.731 |
| The suppliers rating system is thorough | 0.870 | 0.129 | 11.328 |
| Suppliers are integrated into the product/service development process | 0.869 | 0.083 | 13.065 |
| <u>Goodness of Fit Statistics*</u> | | | |
| CMIN/DF | | 0.972 | |
| GFI | | 0.992 | |
| AGFI | | 0.969 | |
| Composite reliability | | 0.915 | |

Product/service design

| Items | Standardised loading | Standardised error | T-value |
|--|----------------------|--------------------|---------|
| Product/service design reviews are carried out before products/service is produced or marketed | 0.832 | | |
| Departments involved in the product/service design are coordinated | 0.861 | 0.056 | 18.601 |
| The quality of new products/services are emphasized in relation to cost or schedule objectives | 0.925 | 0.073 | 15.987 |
| The ease of production /implementation is considered in the product/service design process | 0.930 | 0.074 | 16.091 |
| <u>Goodness of Fit Statistics*</u> | | | |
| CMIN/DF | | 0.029 | |
| GFI | | 1.000 | |
| AGFI | | 0.999 | |
| Composite reliability | | 0.937 | |

Process Management

| Items | Standardised loading | Standardised error | T-value |
|--|----------------------|--------------------|---------|
| Inspection, reviews, or checking of work, is automated | 0.985 | | |
| Production schedule/work distribution is stable | 0.824 | 0.041 | 18.426 |
| The production process is automated | 0.976 | 0.025 | 40.329 |
| Production processes are designed to minimise the chances of employee errors | 0.825 | 0.039 | 18.467 |
| <u>Goodness of Fit Statistics*</u> | | | |
| CMIN/DF | | 0.352 | |
| GFI | | 0.999 | |
| AGFI | | 0.990 | |
| Composite reliability | | 0.948 | |

Quality Data and Reporting

| Items | Standardised loading | Standardised error | T-value |
|---|----------------------|--------------------|---------|
| Quality data is available | 0.867 | | |
| Quality data is timely | 0.924 | 0.066 | 20.919 |
| Quality data is accurate and reliable | 0.970 | 0.069 | 20.375 |
| Quality data is used to manage quality | 0.942 | 0.065 | 19.176 |
| <u>Goodness of Fit Statistics*</u> | | | |
| CMIN/DF | | 1.687 | |
| GFI | | 0.995 | |
| AGFI | | 0.953 | |
| Composite reliability | | 0.960 | |

Competitive Advantage

| Items | Standardised loading | Standardised error | T-value |
|---|-------------------------|-----------------------|---------|
| The unit costs of manufacturing | 0.864 | | |
| Fast delivery of products | 0.925 | 0.062 | 17.654 |
| Flexibility in changing the volume of production | 0.902 | 0.062 | 16.826 |
| Inventory turnover | 0.801 | 0.072 | 13.472 |
| Cycle time (from receipt of raw materials to shipment) compared to their competitors | 0.865 | 0.063 | 15.502 |
| <u>Goodness of Fit Statistics*</u> | | | |
| CMIN/DF | | 2.445 | |
| GFI | | 0.978 | |
| AGFI | | 0.917 | |
| Composite reliability | | 0.941 | |

CHAPTER FIVE

PAPER THREE

The effectiveness of quality management in Bangladesh

Abstract

This study examines the mediating role of quality performance in the association between six specific organisational factors (top management support, employee involvement, employee empowerment, reward and recognition, customer focus and training) and competitive advantage. Using a survey, data was collected from 179 garment organisations in a developing economy. The results show that three specific organisational factors (top management support, employee involvement and reward, and recognition) are significantly associated with quality performance, and quality performance is positively associated with competitive advantage. In addition, the findings reveal the direct association between three specific organisational factors (top management support, employee involvement, employee empowerment) and competitive advantage. The findings provide managers of developing economies with an important and broader insight into the critical role of quality in achieving competitive advantage.

Key words

Organisational factors, quality performance, competitive advantage

1. Introduction

Organisations have experienced many changes in recent times due to deregulation, developments in information systems and technologies, and globalisation (Munir et al., 2013; Wignall and Atkinson, 2010; Lapavitsas and Santos, 2008) with such changes resulting in increased competition. This highly competitive market, with increased customer demand for better products/services, has led organisations to focus more on quality (Talib et al., 2013). Accordingly, organisations have implemented quality management (QM) with a view to improving the efficiency of production processes and providing superior value to customers. QM consists of coordinated activities that organisations use to direct, control, and manage quality. QM enables organisations to improve operational activities and performance (Abdullah et al., 2008; Prajogo and Sohal, 2006) through improving quality, productivity, and reducing cost (Solomon and Hogan, 2012; Zhang et al., 2012; Schuurman, 1997).

A review of the literature reveals that organisations have experienced varying degrees of success with QM, with some organisations being forced to discontinue the use of such initiatives (Taylor and Wright, 2003). For instance, while Taylor and Wright (2003) highlight the success of QM in terms of improved internal systems and product quality, studies by Mosadeghrad (2013), Buranajarukorn et al. (2006), and Taylor and Wright (2003) highlight factors attributable to the failure of QM including insufficient infrastructure, improper implementation of strategies, lack of a quality-oriented culture, lack of top management support, lack of employee involvement, and inadequate planning.

Many studies have examined the association of various organisational factors and QM effectiveness including top management commitment (Talib et al., 2013; Salehedin, 2009; Pinho, 2008; Vijande and Gonzale, 2007; Prajogo, 2005; Demirbag et al., 2006; Sohail and Hoong, 2003; Sharma and Gadenne, 2002), team work (Rad, 2005; Bayazit, 2003), employee involvement (Fotopoulos and Psomas, 2010; Salehedin, 2009; Sohail and Hoong, 2003; Sharma and Gadenne, 2002), employee empowerment (Salehedin, 2009; Kapuge and Smith, 2007; Sohail and Hoong, 2003; Powell, 1995), reward and recognition (Zhang et al., 2000), and organisational culture (Baird et al., 2011). While previous studies have examined the direct association between these factors and firm performance, there have been mixed findings and hence this study aims to extend this literature by examining the effect of such factors on QM effectiveness through quality performance. The study examines the effect of six organisational factors (top management support, employee involvement, employee empowerment, reward and recognition, customer focus, and training). These factors are not a comprehensive set of factors affecting QM effectiveness, but were chosen because they have been suggested or found to be associated with QM effectiveness in many studies (Talib et al., 2013; Salehedin, 2009; Kapuge and Smith, 2007; Sharma and Gadenne, 2002; Zhang et al., 2000).

Hamilton and Chervany (1981) suggest that effectiveness can be assessed at three levels (i) the usefulness of information (ii) improvements in organisational processes (iii) improvements in organisational performance. They argue that the impact of management initiatives on organisational performance does not occur directly but rather occurs indirectly via improvements in organisational processes. Accordingly, drawing on Hamilton and Chervany's (1981) view, it is argued that the effect of organisational

factors on desired organisational outcomes will be influenced by the effectiveness of organisational processes, in particular quality performance. Specifically, this study aims to extend the QM literature by examining the association between these six organisational factors and quality performance which is assessed in respect to improved product/service quality, increased productivity, reduced costs of defects and rework, reduced delivery lead time of finished products/services to customers, reduced customer complaints, and a decline in the number of warranty claims. The subsequent impact of quality performance on QM effectiveness is also examined. Accordingly, the study explores the mediating role of quality performance in the association between the organisational factors and QM effectiveness.

Previous research which has examined the association between organisational factors with QM effectiveness have generally measured effectiveness in terms of organisational performance (Mahmood et al., 2014; Talib et al., 2013; Saleheldin, 2009; Pinho, 2008; Vijande and Gonzale, 2007; Prajogo, 2005; Demirbag et al., 2006). However, few studies have examined the effectiveness of QM initiatives in respect to the effect on competitive advantage (Shenawy et al., 2009; Douglas and Judge, 2001; Reed et al., 2000; Flynn et al., 1995; Powell, 1995). Competitive advantage is a special advantage that allows an organisation to create value for customers through using its resources and competencies (Fitzroy and Hulbert, 2005). Accordingly, organisations place emphasis on producing high quality products to establish and maintain a competitive position (Agus and Hassan, 2011) with various QM practices facilitating organisational improvement in quality (Fotopoulos and Psomas, 2009; Sharma and Kodali, 2008). Therefore, this study is motivated to assess QM effectiveness in terms of competitive

advantage which is measured in respect to cost reduction, fast delivery, flexibility in changes in volume, inventory turnover, and cycle time.

Hence, the objectives of the study are:

1. to identify the association between specific organisational factors and quality performance.
2. to identify the association between quality performance and competitive advantage.
3. to identify the mediating effect of quality performance on the association between organisational factors and competitive advantage.

While most prior studies have identified the association between organisational factors and the effectiveness of QM in developed economies (Zehir et al., 2012; Corredor and Goni, 2011; Fotopoulos and Psomas, 2010; Gadenne and Sharma, 2009; Kumar et al., 2009; Pinho, 2008; Prajogo and Sohal, 2006; Feng et al., 2006; Demirbag et al., 2006; Rahman and Bullock, 2005; Prajogo, 2005; Chong and Rundus, 2004; Prajogo and Brown, 2004; Kaynak, 2003; Watson et al., 2003; Rahman, 2001), the research in developing economies is scarce (Gharakhani et al., 2013; Talib et al., 2013; Zhang et al., 2012; Saleheldin, 2009; Kapuge and Smith, 2007; Osuagwu, 2002). It is considered important to focus on developing economies due to their unique environments. Moreover, developing economies are different from developed economies in terms of trade and capital flows (Citigroup, 2011), the quality of infrastructure, and the size of markets (Gosen et al., 2005). Accordingly, given the limited studies, this study focuses on examining the hypothesised associations in a developing economy, Bangladesh.

The remainder of this paper is organised as follows: Section 2 discusses the literature

review and the hypotheses development. Section 3 then discusses the research method and the measurement of the variables. Section 4 outlines the results and Section 5 provides the discussion and conclusion. Finally, Section 6 discusses the limitations and future directions for research.

2. Literature review and hypotheses development

“QM is an integrated approach to achieving and sustaining high quality outputs focusing on the maintenance and continuous improvement of processes and defect prevention at all levels and in all functions of the organisation in order to meet or exceed customer expectations” (Flynn et al., 1995, p.342). QM is considered to be a valuable competitive tool and an indispensable strategic force for an organisation which enables them to achieve superior performance (Lee, 2004). The literature reveals that prior studies have mostly examined the direct relationship between organisational factors and the effectiveness of QM, assessed in respect to organisational performance (Zehir et al., 2012; Corredor and Goni, 2011; Fotopoulos and Psomas, 2010; Gadenne and Sharma, 2009; Kumar et al., 2011). However, Hamilton and Chervany (1981) assert that the impact of any management initiative on its effectiveness can be attributed to improvements in organisational processes. Specifically, Hamilton and Chervany (1981) maintain that the desired impact of any management practice, occurs as a result of process effectiveness. Therefore, in line with Hamilton and Chervany (1981) it is suggested that QM effectiveness, assessed in respect to competitive advantage, is contingent upon quality performance. Accordingly, the next three sub-sections discuss the association between specific organisational factors and quality performance, the association between quality performance and competitive advantage, and the mediating

role of quality performance in the association between organisational factors and competitive advantage.

2.1 The association between specific organisational factors and quality performance

2.1.1 Top management support

Top management support indicates the participation of top managers in various quality related activities (Zhang et al., 2000). The commitment and positive attitude of top management affects quality improvement activities through facilitating quality processes (Negri, 2003; Sohal and Terziovski, 2000). It is claimed that the commitment of top management to quality facilitates the adequate allocation of resources by organisations, thereby improving quality (Karuppsami and Gardhinathan, 2006). Top management integrates quality improvements into the strategic planning process which subsequently promotes quality values (Wardhani et al., 2009). It is claimed that top management support affects quality performance (Arumugam et al., 2008; Prajogo and Brown, 2004) in terms of improvements in productivity, quality and delivery performance (Samson and Terziovski, 1999). Furthermore, top management support can provide policies and structures focusing on employees (Kaynak and Hartley, 2008), thereby minimising defects and improving the quality of products. Similarly, Garvin (1986) suggests that high levels of quality performance are accompanied by strong top management support (Garvin, 1986).

H1: The extent of top management support is positively associated with quality performance.

2.1.2 Employee empowerment

Empowerment refers to distributing power and responsibilities among all levels of employees, thereby enabling them to develop, innovate, initiate and make decisions independently (Kumar et al., 2011). It is argued that empowered employees are more innovative (Gomez and Rosen, 2001) and efficient in work processes which subsequently increases productivity (Sharma and Gadenne, 2002; Antony et al., 2002). Empowered employees are delegated authority and allocated resources to make quality improvement decisions which enhances employees' ability to produce improved products or services (Ugboro and Obeng, 2000). Specifically, effective decision-making enables employees to make significant contributions to quality improvement processes (Sadikoglu and Zehir, 2010; Ooi et al., 2007). Employee empowerment creates a sense of contribution, initiating action, and leading to better employee satisfaction (Jun et al., 2006), which subsequently enhances quality performance. Moreover, employee empowerment increases the problem solving ability of employees which improves the quality of products/services, thereby reducing product rework (Antony, 2002).

H2: The extent of employee empowerment is positively associated with quality performance.

2.1.3 Employee involvement

Employee involvement indicates the extent to which employees are engaged in various quality related activities (Zhang et al., 2000). Employee involvement facilitates employees with knowledge enhancement and creates a sense of achievement by solving quality problems. Employee involvement assists organisations through increasing job commitment, thereby motivating them to provide more effort to improve product and service quality (Zhang et al., 2000). Therefore, through participation in quality

improvement activities, employees can improve product quality, reduce the cost of warranty claims, and reduce defect rates (Dow et al., 1999). Moreover, employees' direct participation in the quality improvement process assists employees to better understand quality in terms of delivery quality, product and process specifications facilitating the detection and elimination of bottlenecks, and improving product design characteristics (Khan, 2003; Das et al., 2000). Kaynak and Hartley (2008) found an association between employee involvement and quality improvement. In addition, Yusuf et al. (2007) suggest that employee involvement enhances quality performance through increases in the productivity of an organisation.

H3: The extent of employee involvement is positively associated with quality performance.

2.1.4 Reward and recognition

Rewards are provided to encourage employees to work toward the organisations' goals so as to achieve higher levels of performance (Kilmann, 1989). Lawler (2005) suggests that rewards that are linked to specific performance targets facilitate employee motivation, thereby improving performance. It is mentioned that the extent of employee involvement in quality initiatives depends on the rewards and incentives provided by management (Ahire et al., 1996). Recognition creates a feeling of being valued which boosts employee morale, thereby increasing productivity (Danish and Usman, 2010). Quality improvement initiatives need to be accompanied by employee reward systems which can assist in improving quality (Tari, 2005; Zhang et al., 2000). In addition, Brown and Lam (2008) mentioned that an employee compensation system which is linked to quality and customer satisfaction facilitates organisational quality initiatives. For instance, rewards and recognition that are linked to quality performance can act as a strong motivating element for employee commitment to quality

improvement (Das et al., 2000). For example, the provision of salary increases, promotions, and other financial incentives improve quality performance (Zhang et al., 2000). Flynn et al. (1995) mentioned that the incentive for quality improvement in turn facilitate quality enhancement.

H4: The extent of rewards and recognitions is positively associated with quality performance.

2.1.5 Training

Training is critical to any quality improvement program (Talib et al., 2013). Training facilitates employees specific skills and/or knowledge and guides employees to perform particular tasks or a specific job (Zhang et al., 2000). It is considered to be an essential tool for producing high quality products (Ueno, 2008) which require employees to be equipped with knowledge and skills (Zakuan et al., 2012; Jamali et al., 2010). Training enhances employees' quality related awareness (Kaynak, 2003) and enhances their knowledge and skills, thereby minimising defects and improving quality (Sharma and Gadenne, 2002). Training improves employees' capacity to identify and provide solutions to problems, thereby assisting continuous improvement in quality (Yusuf et al., 2007). Ho et al. (2001) reported that training had a positive effect on product quality, while Hassan and Kerr (2003) found that training lead to higher productivity, thereby assisting quality performance.

H5: The extent of training is positively associated with quality performance.

2.1.6 Customer focus

Customer focus indicates an organisation's extent of satisfying its customers through continuously meeting needs and expectations (Zhang et al., 2000). Focusing on customers plays a crucial role in any quality improvement program (Metri, 2005).

A close relationship with customers is important to fully understand their needs and to obtain customer feedback which can be used to improve product and service quality (Zhang, 2000). It is suggested that a strong relationship with customers facilitates quality performance by reducing rework, thereby reducing manufacturing process variability (Flynn et al., 1995). Rahman and Bullock (2005) suggest that customer focus facilitates improvements in productivity, quality and delivery performance. Khan (2003) reveals the association between customer focus and improvements in product quality and productivity through reductions in internal and external failure costs. Arumugan et al. (2008) also found a positive association between customer focus and quality performance.

H6: The extent of customer focus is positively associated with quality performance.

2.2 The association between quality performance and competitive advantage

Many studies have revealed that competitive advantage is achieved through quality improvements (Shenawy et al., 2007). Improvements in product quality enables organisations to deal with their competitors better, thereby achieving sustainable competitive advantage (Reed et al., 2000). It is suggested that increased product quality fosters improvements in competitive priorities including reductions in costs and quicker delivery times (Kumar et al., 2011; Yang, 2006; Antony et al., 2004), thereby assisting in enhancing competitive advantage. As mentioned by Kaynak (2003), reduced rework, and less scrap lower the cost of an organisation, thereby enabling organisation in achieving competitive advantage. It is also suggested that improvement in quality results in more sales (Ahire and Dreyfus, 2000). Moreover, organisations may emphasise reducing the number of customer complaints through satisfying needs and demands, thereby assisting in enhancing their competitive position (Zehir et al., 2012).

Furthermore, it is stressed that reductions in scrap and rework minimises the costs of defects (Zakuan et al., 2012) and in turn reduces cycle time (Huang and Lin, 2002), thereby enhancing competitive advantage.

H7: Quality performance is positively related to competitive advantage.

2.3 The mediating role of quality performance in the association between organisational factors and competitive advantage

Given this study hypothesises the effect of organisational factors on quality performance, and quality performance on competitive advantage, this study aims to explore whether there is an indirect association between organisational factors and competitive advantage through quality performance. Specifically, this study examines the following hypothesis which maintains that the association between organisational factors and competitive advantage will be mediated by quality performance.

H8: Quality performance mediates the association between organisational factors with the competitive advantage

3. Method

A survey questionnaire was distributed to a random sample of 673 Bangladeshi garment firms. The directory of Bangladesh Garment Manufacturers and Exporters Association (BGMEA) and Bangladesh Knit Manufactures and Exporters Association (BKMEA) were used to select the firms. Bangladesh garment firms were chosen because of their important contribution to the country's economy and their increasing focus on quality issues. To improve the response rate, Dillman's (2007) Tailored Design Method was used to design and distribute the questionnaire. This approach provides guidelines regarding the style and format of questions, techniques to personalise surveys, and distribution procedures. The business unit was chosen as it is the most common unit of

analysis in the QM literature (Kaynak and Hartley, 2008; Kaynak, 2003). The response rate was 28% with a total of 179 responses received. However, 29 questionnaires which were completed by irrelevant managers were removed from the data set to ensure reliability, with the remaining 150 responses used to analyse the data. Data were analysed using Structural Equation Modeling (SEM) with AMOS software.

4. Variable measurement

As recommended by Schumacher and Lomax (1996) Confirmatory Factor Analysis (CFA) was conducted to assess the construct validity of each variable. Four main elements, namely the significance of the standardised factor loading, the standardised error and t-statistics for each item, and overall fit indices (i.e. CMIN/DF, GFI and AGFI) were examined. The Appendix provides the statistics of the measurement analysis for each variable examined. Re-specification was conducted only for one construct, namely reward and recognition, with one item deleted due to low factor loadings. All constructs used for the remaining variables exceed the recommended cut-off point for standardised factor loading (higher than or close to 0.5) and represent an overall good model fit.

4.1. Organisational factors

The organisational factors including top management support, employee involvement, training, and reward and recognition were assessed using Zhang et al.'s (2000) instrument. A five point Likert scale with anchors of "not at all" and "to a great extent" was used to measure all items. Top management support was measured in respect to four items with respondents asked to indicate the extent to which top management (i) provides active support; (ii) allocates resources; (iii) effectively communicates and (iv) exercises authority in support of quality management practices in their business unit. Employee involvement was measured in respect to eight items with respondents

required to indicate the extent to which the business unit (i) uses cross functional teams; (ii) uses quality control circles (QCCs); (iii) involves employees in quality related activities; (iv) implements suggested activities; (v) implements suggestions after an evaluation; (vi) employees are committed to the success of business units; (vii) encourages employees to fix problems; and (viii) encourages employees to report work problems. Six-items were used to measure training with respondents required to indicate the extent to which (i) employees are encouraged to accept education and training; (ii) resources are available for employee education and training; (iii) employees are trained on how to use quality management methods (tools); (iv) quality awareness education is given to employees; (v) specific work-skills training is given to all employees; and (vi) employees are regarded as valuable, long-term resources worthy of receiving education and training throughout their career. Reward and recognition was initially measured in respect to six items with respondents required to indicate the extent to which (i) the business unit improves working conditions in order to recognise employee quality improvement efforts; (ii) the business unit has a salary promotion scheme for encouraging employee participation in quality improvement; (iii) position promotions are based on work quality in our company; (iv) excellent suggestions are financially rewarded; (v) employees' rewards and penalties are clear; and (vi) recognition and reward activities effectively stimulate employee commitment to quality improvement. However, due to the low factor loadings revealed by the CFA, the item "position promotions are based on work quality in our company" was deleted.

Employee empowerment was assessed using an adapted four item version of the Pardo del Val and Lloyd (2003) instrument with respondents required to indicate the extent to which (i) front line workers have a high level of collaboration and involvement in

decision making; (ii) the business unit has official channels or certain norms or rules to guarantee their participation in the decision making process; (iii) front line workers contribute directly to the decision making process, rather than through intermediaries (eg. superiors); and (iv) front line workers have authority/power to make and implement decisions about tasks. Customer focus was assessed using a six item instrument employed by Kaynak and Hartley (2008), Ahire and Drefus (2000) and the US Department of Commerce (2007) where respondents were required to indicate the extent to which (i) customers are involved in product/service design; (ii) customer satisfaction surveys are regularly conducted; (iii) the business unit actively seeks ways to improve customer satisfaction; (iv) there is interaction between business units and customers on establishing reliability and responsiveness standards; (v) customer requirements and expectations in relation to the company's products/services are used in developing strategic plans and goals of the business unit; (vi) formal benchmarking procedures have been established to assess customer satisfaction level against competitors.

4.2 Quality performance

The quality performance measures were adapted from Baird et al.'s (2011) instrument. A five point-Likert scale was used to measure the items with anchors of 1 "not at all" and 5 "to a great extent" with respondents required to indicate the extent to which the business unit has (i) increased the quality of products or services; (ii) reduced costs of defects and rework; (iii) reduced delivery lead time (raw materials to finished products to customer);(iv) reduced customer complaints; (v) observed a decline in the number of warranty claims; (vi) increased productivity.

4.3 Competitive advantage

Competitive advantage was adapted from Flynn et al.'s (1995) instrument. A five point-Likert scale was used to measure the items with anchors of 1 "worse than competitors" and 5 "better than competitors" with respondents required to rate the performance of the business unit compared to its competitors in terms of the (i) unit costs of manufacturing; (ii) fast delivery of products; (iii) flexibility in changing the volume of production; (iv) inventory turnover; and (v) cycle time (from receipt of raw materials to shipment).

5. Results

5.1 Descriptive statistics

Descriptive statistics for the variables are shown in Table 1. For the multi-item scales the actual range was comparable with the theoretical range. Table 1 shows that the Cronbach alpha scores all exceed the 0.7 threshold, ranging from 0.85 to 0.91, thereby indicating acceptable scale reliability (Nunnally, 1978, p. 245).

5.2 Analysis of Significant paths

The hypotheses were tested using Structural Equation Modeling (SEM). Following Anderson and Gerbing (1988) non-significant paths were removed from the model until all remaining paths in the model were significant and the overall (reduced) model was a good fit. The values of the indices (CMIN/DF=2.596; GFI=0.990; AGFI=0.900; CFI=0.997; NFI=0.995) show that the model exhibited a good fit. In Figure 1 and Table 2, three organisational factors, top management support($\beta=0.335$, $p=0.000$), employee involvement ($\beta=0.336$, $p=0.000$), and reward and recognition ($\beta=0.215$, $p=0.002$) were found to be significantly associated with quality performance, thereby providing support for hypotheses 1, 3 and 4. However, no association was found between

employee empowerment, training, and customer focus with quality performance, resulting in the rejection of hypotheses 2, 5 and 6. In addition, quality performance was found to have a significant and positive association with competitive advantage ($\beta=0.560$, $p=0.000$), providing support for hypothesis 7. Finally, Table 2 shows that top management support ($\beta=0.127$, $p=0.030$), employee empowerment ($\beta=0.111$, $p=0.012$) and employee involvement ($\beta=0.194$, $p=0.003$) were directly associated with competitive advantage

Table 1: Descriptive statistics

| Variables | Mean | SD | Minimum Actual/ (Theoretical) | Maximum Actual/ (Theoretical) | Cronbach's α |
|------------------------|------|------|----------------------------------|----------------------------------|---------------------|
| Top management support | 4.29 | 0.74 | 2.75 (1) | 5(5) | 0.93 |
| Employee empowerment | 3.59 | 1.01 | 1 (1) | 5(5) | 0.91 |
| Employee involvement | 4.19 | 0.78 | 1.88 (1) | 5(5) | 0.95 |
| Customer focus | 3.90 | 0.81 | 1.83 (1) | 5(5) | 0.87 |
| Education and training | 4.10 | 0.80 | 2.33 (1) | 5(5) | 0.95 |
| Reward and recognition | 3.86 | 0.91 | 1.17 (1) | 5(5) | 0.85 |
| Quality performance | 3.92 | 0.81 | 2 (1) | 5(5) | 0.94 |
| Competitive advantage | 3.96 | 0.88 | 1.8 (1) | 5(5) | 0.95 |

Figure 1: The association between organisational factors, quality performance and competitive advantage

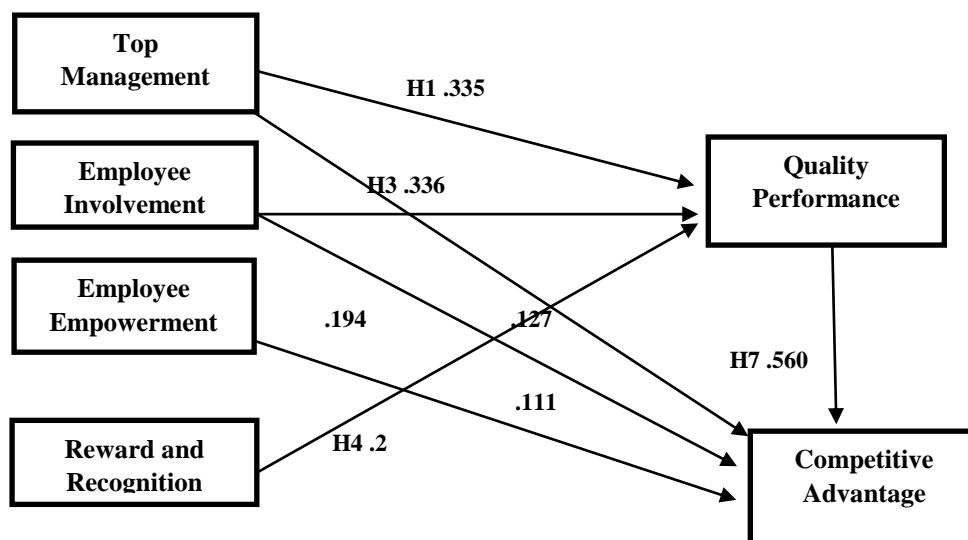


Table 2: Results of the path analysis between organisational related factors, quality performance and competitive advantage

| <u>Regression Path</u> | Standardised beta | Standardised error | Critical ratio | P-value |
|---|------------------------------|-------------------------------|---------------------------|----------------|
| Top management support→quality performance | 0.335 | 0.020 | 4.508 | 0.000 |
| Employee involvement→quality performance | 0..336 | 0.011 | 3.949 | 0.000 |
| Reward and recognition→quality performance | 0.215 | 0.010 | 3.060 | 0.002 |
| Employee empowerment→ Competitive advantage | 0.111 | 0.048 | 2.517 | 0.012 |
| Top management support → Competitive advantage | 0.127 | 0.091 | 2,068 | 0.030 |
| Employee involvement→ Competitive advantage | 0.194 | 0.047 | 2.980 | 0.003 |
| Quality performance→ Competitive advantage | 0.560 | 0.312 | 9.930 | 0.000 |
| <u>Goodness of Fit Statistics</u> | | | | |
| CMIN/DF | | 2.596 | | |
| GFI | | 0.990 | | |
| AGFI | | 0.900 | | |
| CFI | | 0.997 | | |
| NFI | | 0.995 | | |

5.3 The mediating role of quality performance

The test for mediation provided in Table 3 reveals that quality performance mediates the positive relationship between the three organisational factors (top management support (CI_{LL} .369, CI_{UL} .843), employee involvement (CI_{LL} .077, CI_{UL} .314) and reward and recognition (CI_{LL} .043 CI_{UL} .327) with competitive advantage. Accordingly, the findings partially support hypothesis 8.

Table 3: Bootstrapped regression analysis of mediation effects

| | Competitive Advantage | | |
|------------------------|-----------------------|-------|-------|
| | Std | LL95% | UL95% |
| | Error | CI | CI |
| Top management support | .112 | .369 | .843 |
| Employee involvement | .063 | .077 | .314 |
| Reward and recognition | .069 | .043 | .327 |

CI, Confidence interval; LL, Lower Limit; UL, Upper Limit

6. Discussion and conclusion

The study had three objectives. The first objective of the study was to identify the association between specific organisational factors with quality performance. The findings indicate that three organisational factors (top management support, employee involvement, and reward and recognition) exhibit a significant positive association with quality performance. The positive association between top management and quality performance is consistent with the findings in Arumugam et al. (2008) and Prajogo and Brown (2004). This result highlights the critical role of top management involvement through their personal commitment to quality improvement and ensuring the availability of resources in order to improve quality performance. Therefore, to improve quality performance top management need to be committed and motivated to understand and realise the necessity of QM practices for their organisations and accordingly develop quality objectives. Moreover, they need to create an organisation wide awareness regarding quality issues.

Further, the findings suggest that organisations should ensure employee involvement in quality related activities in order to enhance quality performance. Accordingly,

managers should effectively communicate quality objectives to all levels of employees in order to increase employees' involvement in this regard. For example, organisations can adopt quality teams such as quality circles and encourage suggestions from employees to enhance their involvement in quality improvement initiatives, and enable them to better understand quality problems and ensure effective utilisation of knowledge to improve quality performance. The findings also highlight the importance of reward and recognition in enhancing quality performance. Specifically, if organisations develop reward and recognition programs that are linked with quality performance, it can motivate employees to achieve quality targets. Hence, organisations can motivate employees to attain quality objectives by providing promotion opportunities and financial incentives, thereby assisting the organisation in improving their quality performance.

The second objective of this study was to examine the association between quality performance and competitive advantage with a positive relationship identified. This finding is consistent with the findings of Flynn et al. (1995). Hence, in order to enhance competitive advantage organisations should focus on enhancing quality performance. This provides managers of garment organisations with an insight into the critical role of quality performance in enhancing their competitive advantage.

In respect to the third objective, the results revealed that quality performance mediates the effect of top management support, employee involvement, and reward and recognition on competitive advantage. This result indicates that the effectiveness of QM (competitive advantage) is due to the indirect effect of organisational factors through quality performance. Specifically, through providing adequate resources, supporting

quality improvement approaches, and exercising its authority in support of such approaches, top management can facilitate improvements in quality performance, thereby leading to competitive advantage. Therefore, top management should encourage the development of practices that enhance quality performance in order to assist in enhancing competitive advantage. Top management support can act as a vital role in the accomplishment of quality goals and commitment to continuously improving quality, thereby enhancing competitive advantage. Consistent with the result by Flynn et al. (1995), this study argues that quality performance is critical in achieving competitive advantage. Accordingly, organisations can provide necessary resources to develop and ensure top management have the quality related skills and knowledge through adequate training and education.

Likewise, if employees are involved in quality improvement activities, they can make significant contributions to quality improvement processes which help to reduce costs, thereby enhancing competitive advantage. In this respect, organisations can ensure employee involvement through suggestion schemes which motivate them to work towards improving quality. Organisations can also use cross-functional team and Quality Control Circles (QCC) to regularly involve employees toward quality improvement. Furthermore, if employees are recognised and rewarded for their quality related tasks, this can improve their commitment toward quality improvement, thereby facilitating competitive advantage. For instance, in order to improve quality performance, organisations can introduce both financial and non-financial rewards which motivates them to be more oriented to quality.

In addition to the indirect associations, the results reveal a direct association between top management support, employee involvement and employee empowerment with competitive advantage. The direct and indirect association between top management support and employee involvement with competitive advantage emphasises their critical role in the attainment of competitive advantage. The direct association of employee empowerment with competitive advantage, emphasises employees' independent decision making power in quality improvement initiatives. Therefore, organisations must recognise the importance of empowering employees through providing them with decision making power, along with encouraging their involvement in quality activities. Hence, if top management provide employees with access to key information and empowers them to adapt their processes, organisations will be able to better achieve competitive advantage. Moreover, organizations may encourage quality improvement through providing a better working conditions thereby enhancing competitive advantage.

The findings have some important implications for managers of organisations regarding QM effectiveness in developing economies. Specifically, the managers of organisation can learn about the critical role of organisational factors in achieving competitive advantage. The mediating effect of quality performance on the association between specific organisational factors (top management support, employee involvement, reward and recognition) and competitive advantage highlights the need to concentrate on quality performance to achieve competitive advantage. In particular, managers can obtain a better understanding of the factors that are associated with a company's quality performance. Moreover, managers can learn about the factors that are directly and indirectly associated with competitive advantage, thereby assisting in strategy making.

7. Limitations and suggestions for future research

The mail survey approach used in this study has certain inherent limitations. One important limitation is its inability to identify the people who actually complete the survey. In order to minimise such concerns the study used Dillman's (2007) Tailored Design Method. Future research could combine the survey method with interviews. Moreover, the self-reported data of sample business units might cause response bias which future research could mitigate by directly collecting qualitative and quantitative data from the units. However, as the respondents were guaranteed anonymity in the survey process, the problem of social desirability bias is likely to have been minimised. Researchers can conduct further studies in other developing nations, reinforcing the approach suggested by Hamilton and Chervany (1981) by examining the QM effectiveness in respect to quality performance. In addition, future research may also extend the current analysis by focusing on the association of other organisational factors with the effectiveness of QM.

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Appendix: CFA Result

(The first item of each scale has no t-value since it has a fixed parameter in AMOS)

Top management support

| <u>Regression Path</u> | Standardised loading | Standardised error | T-value |
|---|---------------------------------|-------------------------------|----------------|
| Provides active support | 0.881 | | |
| Allocates resources | 0.827 | 0.088 | 14.088 |
| Effectively communicates | 0.954 | 0.075 | 16.031 |
| Exercises authority in support of quality management practices in their business unit | 0.905 | 0.071 | 16.386 |
| <u>Goodness of Fit Statistics*</u> | | | |
| CMIN/DF | | 0.864 | |
| GFI | | 0.998 | |
| AGFI | | 0.976 | |
| Composite reliability | | 0.940 | |

Employee involvement

| <u>Regression Path</u> | Standardised loading66 | Standardised error | T-value |
|--|-----------------------------------|-------------------------------|----------------|
| Uses cross functional teams | 0.783 | | |
| Uses quality control circles | 0.836 | 0.066 | 15.754 |
| Involves employees in quality related activities | 0.864 | 0.084 | 13.136 |
| Implements suggested activities | 0.872 | 0.091 | 13.294 |
| Implements suggestions after an evaluation | 0.884 | 0.093 | 13.542 |
| Employees are committed to the success of business units | 0.880 | 0.090 | 13.459 |
| Encourages employees to fix problems | 0.879 | 0.088 | 13.442 |
| Encourages employees to report work problems | 0.841 | 0.103 | 12.679 |
| <u>Goodness of Fit Statistics*</u> | | | |
| CMIN/DF | | 2.962 | |
| GFI | | 0.934 | |
| AGFI | | 0.868 | |
| Composite reliability | | 0.956 | |

Education and training

| Items | Standardised loading | Standardised error | T-value |
|--|-------------------------|-----------------------|---------|
| Employees are encouraged to accept education and training | 0.900 | | |
| Resources are available for employee education and training | 0.861 | 0.066 | 17.008 |
| Employees are trained on how to use quality management methods (tools) | 0.906 | 0.059 | 19.215 |
| Quality awareness education is given to employees | 0.937 | 0.051 | 21.074 |
| Specific work-skills training is given to all employees | 0.886 | 0.054 | 18.193 |
| Employees are regarded as valuable, long-term resources worthy of receiving education and training throughout their career | 0.852 | 0.062 | 16.603 |
| <u>Goodness of Fit Statistics*</u> | | | |
| CMIN/DF | | 2.478 | |
| GFI | | 0.964 | |
| AGFI | | 0.916 | |
| Composite reliability | | 0.958 | |

Reward and recognition

| Items | Standardised loading | Standardised error | T-value |
|---|-------------------------|-----------------------|---------|
| The business unit improves working conditions in order to recognise employee quality improvement efforts | 0.722 | | |
| The business unit has a salary promotion scheme for encouraging employee participation in quality improvement | 0.499 | 0.181 | 7.092 |
| Excellent suggestions are financially rewarded | 0.968 | 0.133 | 13.063 |
| Employees' rewards and penalties are clear | 0.959 | 0.132 | 12.954 |
| Recognition and reward activities effectively stimulate employee commitment to quality improvement | 0.891 | 0.119 | 12.009 |
| <u>Goodness of Fit Statistics*</u> | | | |
| CMIN/DF | | 2.405 | |
| GFI | | 0.979 | |
| AGFI | | 0.920 | |
| Composite reliability | | 0.911 | |

Employee empowerment

| Items | Standardised loading | Standardised error | T-value |
|---|----------------------|--------------------|---------|
| Front line workers have a high level of collaboration and involvement in decision making | 0.864 | | |
| The business unit has official channels or certain norms or rules to guarantee their participation in the decision making process | 0.591 | 0.089 | 8.807 |
| Front line workers contribute directly to the decision making process, rather than through intermediaries (eg. superiors) | 0.968 | 0.060 | 19.825 |
| Front line workers have authority/power to make and implement decisions about tasks | 0.942 | 0.066 | 18.926 |
| <u>Goodness of Fit Statistics*</u> | | | |
| CMIN/DF | | 1.634 | |
| GFI | | 0.991 | |
| AGFI | | 0.957 | |
| Composite reliability | | 0.913 | |

Customer focus

| Items | Standardised loading | Standardised error | T-value |
|---|----------------------|--------------------|---------|
| Customers are involved in product/service design | 0.822 | | |
| Customer satisfaction surveys are regularly conducted | 0.799 | 0.093 | 12.764 |
| The business unit actively seeks ways to improve customer satisfaction | 0.978 | 0.069 | 15.981 |
| There is interaction between business units and customers on establishing reliability and responsiveness standards | 0.648 | 0.103 | 9.577 |
| Customer requirements and expectations in relation to the company's products/services are used in developing strategic plans and goals of the business unit | 0.597 | 0.116 | 8.645 |
| Formal benchmarking procedures have been established to assess customer satisfaction level against competitors | 0.494 | 0.158 | 6.916 |
| <u>Goodness of Fit Statistics*</u> | | | |
| CMIN/DF | | 0.879 | |
| GFI | | 0.991 | |
| AGFI | | 0.967 | |
| Composite reliability | | 0.874 | |

Quality performance

| Items | Standardised loading | Standardised error | T-value |
|---|----------------------|--------------------|---------|
| Increased the quality of products or services | 0.802 | | |
| Reduced costs of defects and rework | 0.798 | 0.091 | 12.115 |
| Reduced delivery lead time (raw materials to finished products to customer) | 0.860 | 0.089 | 13.445 |
| Reduced customer complaints | 0.831 | 0.090 | 12.787 |
| Observed a decline in the number of warranty claims | 0.935 | 0.083 | 15.164 |
| Increased productivity | 0.853 | 0.089 | 13.302 |
| <u>Goodness of Fit Statistics*</u> | | | |
| CMIN/DF | | 2.408 | |
| GFI | | 0.966 | |
| AGFI | | 0.911 | |
| Composite reliability | | 0.937 | |

Competitive advantage

| Items | Standardised loading | Standardised error | T-value |
|--|----------------------|--------------------|---------|
| The unit costs of manufacturing | 0.864 | | |
| Fast delivery of products | 0.925 | 0.062 | 17.654 |
| Flexibility in changing the volume of production | 0.902 | 0.062 | 16.826 |
| Inventory turnover | 0.801 | 0.072 | 13.472 |
| Cycle time (from receipt of raw materials to shipment) compared to their competitors | 0.865 | 0.063 | 15.502 |
| <u>Goodness of Fit Statistics*</u> | | | |
| CMIN/DF | | 2.445 | |
| GFI | | 0.978 | |
| AGFI | | 0.917 | |
| Composite reliability | | 0.941 | |

CHAPTER SIX

CONCLUSION

6.1 Introduction

This study examined the adoption and effectiveness of Quality Management (QM) in the context of a developing economy. In respect to the adoption of QM, the study examined the association between contingency factors including organisational related factors and institutional pressures and the adoption of QM, including Total Quality Management (TQM). Specifically, using a case study approach Paper One of the thesis examined the influence of institutional pressures (coercive, mimetic and normative) on the adoption of QM practices. In addition, Paper Two used a mail survey of a random sample of 673 garment organisations to identify the associations between specific organisational related factors and the adoption of TQM, assessed in respect to the combined usage of Kaynak's (2003) core TQM practices (quality data and reporting, supplier quality management, product/service design, process management), and each core practice individually. In respect to QM effectiveness, Paper Two provides an insight into the effectiveness of QM by examining the association between the core TQM practices and competitive advantage. Paper Two also examines the influence of organisational related factors on competitive advantage through core TQM practices. Paper Three examines the direct association of organisational factors with competitive advantage and the association between organisational factors and competitive advantage through quality performance.

The remainder of this chapter is organised as follows. Section 6.2 presents the findings of the thesis. Section 6.3 then discusses the contributions and practical implications of the thesis, and Section 6.4 outlines the limitations of the thesis and provides suggestions for future research.

6.2 Findings

The thesis addressed the four research objectives with all three separate papers providing a detailed insight into the adoption and effectiveness of QM in a developing economy, Bangladesh. Paper 1 provides an insight into how institutional pressures influence the adoption of QM. Paper 2 examines the association between organisational related factors and the adoption of TQM, and its effectiveness. Paper 3 examines the mediating role of quality performance in the association between organisational factors and QM effectiveness.

The findings show that the adoption of QM, including TQM, is influenced by contingency factors including institutional pressures and specific organisational related factors. In respect to the institutional pressures, all three pressures (coercive, mimetic and normative) were found to influence the adoption of QM practices including Quality Control (QC), Quality Control Circles (QCC's), Just-in-Time (JIT), on-line quality checking, Computer Aided Design (CAD), Quality Assurance (QA) and Total Quality Management (TQM). Coercive pressures, in the form of directives from top management arose in response to the retailers' pressure to adopt QM practices following the removal of the Multi-Fiber Arrangement. This subsequently led top management to force organisations to change and increase their focus on QM practices

over time. Moreover, the increased competition and the resultant uncertainty within the market were identified as sources of mimetic pressure influencing organisation to imitate the QM practices of other organisations. Normative pressures were also exerted through the influence of professional garment associations, top management support and training. These findings are consistent with the results by Westphal et al. (1997) and Young et al. (2001) who reported the influences of mimetic and normative pressures on the adoption of TQM.

In respect to the association between the organisational related factors and the adoption of QM practices, an empirical analysis was conducted with the extent of adoption of TQM operationalised using the combined scores of Kaynak's four core TQM practices (quality data and reporting, supplier quality management, product/service design, process management). The findings indicate that all four TQM dimensions are used to a high extent in the garment organisations, and also highlight the positive association of three specific organisational related factors (information technology (IT), Expert Systems (ESs), and the extent of market competition) and the adoption of TQM. Moreover, IT is found to be associated with two of Kaynak's (2003) core TQM practices, process management and quality data and reporting, while supplier evaluation programmes and ESs showed a significant and positive association with supplier quality management. In addition, the core TQM practices were also found to be significantly associated with each other, indicating the interdependencies of these core TQM practices in the adoption of TQM.

The study also provides an insight into the effectiveness of QM practices with such effectiveness assessed in terms of competitive advantage. The results indicate a positive association between the extent of adoption of TQM and competitive advantage, supporting the findings of Shenawy et al. (2007). The study also found a significant and positive association between specific core TQM practices including supplier quality management and product/service design with competitive advantage. Moreover, the study showed an association between quality performance and competitive advantage which supports the findings of Flynn et al. (1995).

In assessing QM effectiveness, the study also provides an insight into the contingency factors affecting QM effectiveness. Evidence of both the direct and indirect association of these factors with competitive advantage was found. Specifically, the study reveals a significant and direct association between three organisational factors (top management support, employee involvement, and employee empowerment) and competitive advantage. In addition, the study found that two organisational related factors, supplier evaluation programmes and ESs were found to be indirectly associated with competitive advantage through supplier quality management and product/service design. In addition, an association of three organisational factors (top management support, employee involvement, and reward and recognition) were found to be associated with competitive advantage through quality performance.

6.3 Contributions and practical implications

This study contributes to the management literature in a number of ways. First, the study extends the existing literature by empirically examining the adoption and effectiveness of QM practices in a developing economy, Bangladesh. In particular, the

analysis incorporates both a qualitative and quantitative approach to examine the research objectives. In doing so, the findings assist managers in developing economies to understand how to enhance the use and effectiveness of QM practices. The focus on a developing economy was considered important as the use and effectiveness of QM in developing economies is different from developed economies due to the political, economic, social and cultural environment. Moreover, while QM practices such as Total Quality Control (TQC), and Quality Circles (QCs) are very common in developed economies, organisations within developing economies experience difficulties in incorporating such practices due to their scant testing facilities, and negligible investment in technologies and R&D (Lakhe and Mohanty, 1994).

Secondly, the study provides evidence that the adoption of QM, including TQM, is influenced by three institutional pressures (coercive, mimetic and normative). While prior studies are limited in only examining the mimetic and normative pressures, this study contributes to the literature by providing a holistic analysis of the influence of all three pressures on the adoption of QM, with coercive pressures found to be the dominant pressure within organisations. The findings show managers the degree of and extent of pressures that actively operate within the garment industry.

Thirdly, in assessing the extent of adoption of TQM, while the majority of prior studies have assessed the overall adoption of TQM, with respondents simply asked to mention whether they use TQM or not, this study operationalised TQM adoption using the combined scores of Kaynak's (2003) four core TQM practices (quality data and reporting, supplier quality management, product/service design, and process

management). This approach provides managers with a broader, more detailed and clearer insight into the adoption of TQM.

Fourthly, the study extends the literature by highlighting the critical role of specific organisational related factors (IT, the extent of market competition, ESs and supplier evaluation programmes) in enhancing the extent of adoption of TQM. Previous studies reinforce that IT supports the adoption of TQM through improving relationships with suppliers and customers, enhancing team work, facilitating information flows between departments, improving process control and applying preventive maintenance (Rodriguez et al., 2006; Lorente et al., 2004), while market competition is found to stimulate organisations to improve quality through adopting TQM (Duh et al., 2012; Chong and Rundus, 2004). The findings reinforce the critical role of IT and market competition in respect to the adoption of TQM. For instance, the association of IT with the extent of adoption of TQM and core TQM practices, emphasises the need for managers to develop a technologically supportive environment which is conducive to the implementation of TQM. Accordingly, organisations may invest in adopting such technologies to facilitate the implementation of quality initiatives. Moreover, the association of market competition with the adoption of TQM will encourage managers to adopt TQM as a competitive tool to produce more customer oriented products, thereby effectively managing competitors and satisfying customers.

In addition, the study highlights the importance of two additional organisational related factors namely Expert Systems (ESs) and supplier evaluation programmes in adopting TQM. An understanding of the critical role of such factors could assist managers in

effectively managing organisational processes under complex settings. For instance, the use of ESs can assist TQM adoption through facilitating training, product design and assisting in decision making regarding the allocation of resources. Further, by incorporating supplier evaluation programmes in improving supplier quality management, managers can improve suppliers' activities and provide immediate feedback on their performance, thereby enabling suppliers to undertake immediate corrective actions and reduce defects. Overall, these findings highlight the critical role of organisational related factors in quality improvements. Therefore, managers should understand the impact of these factors on quality initiatives and consider these issues in planning and strategy making.

Fifthly, the study also extends the literature by providing an insight into the effectiveness of QM, assessed in respect to competitive advantage. The significant role of the extent of adoption of TQM and individual core TQM practices in enhancing competitive advantage, implies that managers should endeavour to make greater use of TQM practices so as to provide better products and services, thereby enhancing competitive advantage. In addition, the association of quality performance with competitive advantage provides managers of garment organisations with an insight into the critical role of quality performance in enhancing their competitive position. Accordingly, managers can focus on improving product/service quality and reducing defects in order to enhance their competitive advantage.

Sixthly, this study contributes to the literature by providing an insight into the association of organisational factors with competitive advantage. Specifically, the result

relating to the direct association of three organisational factors (top management support, employee involvement, and employee empowerment) with competitive advantage, indicate the critical role of these factors in attaining and sustaining competitive position. Accordingly, top management can focus on their role in improving quality and recognise the importance of empowering employees through providing them with decision making power, along with encouraging their involvement in quality activities.

Seventhly, this study contributes to the literature by providing a comprehensive insight into the mediating role of core TQM practices and quality performance in the association between specific organisational factors and competitive advantage. In particular, the observed indirect association of organisational related factors (ESs and supplier evaluation programmes) with competitive advantage through specific core TQM practices including supplier quality management and product/service design, provides managers with an understanding that the outcome of TQM adoption is the result of both TQM core practices and of the indirect effect of specific organisational related factors (ESs and supplier evaluation programmes). In respect to this, managers should improve supplier evaluation programmes through providing regular feedback on their activities and developing an expert reporting system. Moreover, managers should develop skills and technologies to maximise the benefits of the use of ESs. These findings reinforce the need to emphasise organisational factors and the use of TQM to a greater extent to attain competitive advantage.

In addition, the observed association between three organisational factors (top management support, employee involvement, and reward and recognition) and competitive advantage, through quality performance, highlights the critical role of these factors in enhancing quality performance, thereby enhancing competitive advantage. For instance, the association of top management support with quality performance, highlights the necessity of top management involvement through their personal commitment to quality improvement. Accordingly, top management should concentrate more on their personal commitment and involvement through participating in daily quality related activities. Moreover, while in developing economies employees are not encouraged to be involved in decision making activities, the findings in respect to the association of employee involvement and reward and recognition with quality performance will motivate organisations to involve and encourage employees in quality related activities and recognise employee performance through reward and recognition programs. Accordingly, managers should increase employee involvement through adopting quality teams such as quality circles and encourage suggestions from employees to enhance their involvement in quality improvement initiatives, thereby improving quality performance. Moreover, linking reward and recognition to quality performance will allow organisations to encourage employees in achieving desired quality targets.

6.4 Limitations and suggestions for future studies

The study has a number of limitations. Firstly, while the case study aimed to examine the changes in QM practices through a retrospective analysis of organisational participant's views of the changes, there is a possible risk of missing valuable information due to the inability of respondents to recall events. While such concerns

were minimised through the use of multiple data sources, future research may extend the current study by investigating the findings in different research sites.

Secondly, the use of the mail survey method raised usual criticism associated with such an approach as it does not enable probing and there is no control over who completes the survey questionnaire. There is also an inability to ascertain causality. Hence, future research could use alternative methods such as a longitudinal study to provide a broader insight into QM adoption and effectiveness. Thirdly, the data was collected only from the garment industry, which may not be generalised to other manufacturing industries. Finally, future studies could investigate similar research problems in different industries and in the context of other developing economies in order to ascertain whether similar results are obtained.

Appendix A

Quality Management Questionnaire

Please complete this questionnaire with respect to the business unit that you are responsible for or most familiar with. In a small to medium business this may be the whole business. In a large business the business unit may be called a division, department, or some other name. We believe that you are the best person to provide data regarding quality management practices within your business unit. However, if you feel that another person is better equipped to respond to the survey, we would appreciate it if you would pass the survey to them.

General Questions

- 1 How long has your business unit been in operation?
- 2 What is the approximate number of employees within your business unit?
- 3 What is your current position? _____
- 4 Please indicate the extent to which you believe that the following applies to front line workers in your business unit. Front line workers are defined as employees working in the lowest level of hierarchy within your business unit.

| | Not at all | | | | | To a great extent | | | | |
|---|--------------------------|---|--------------------------|---|--------------------------|-------------------|--------------------------|---|--------------------------|---|
| They have a high level of collaboration/involvement in decision making | <input type="checkbox"/> | 1 | <input type="checkbox"/> | 2 | <input type="checkbox"/> | 3 | <input type="checkbox"/> | 4 | <input type="checkbox"/> | 5 |
| There are official channels or certain norms or rules to guarantee their participation in the decision making process | <input type="checkbox"/> | 1 | <input type="checkbox"/> | 2 | <input type="checkbox"/> | 3 | <input type="checkbox"/> | 4 | <input type="checkbox"/> | 5 |
| They contribute directly to the decision making process, rather than through intermediaries (eg. superiors) | <input type="checkbox"/> | 1 | <input type="checkbox"/> | 2 | <input type="checkbox"/> | 3 | <input type="checkbox"/> | 4 | <input type="checkbox"/> | 5 |
| They have authority/power to make and implement decisions about tasks | <input type="checkbox"/> | 1 | <input type="checkbox"/> | 2 | <input type="checkbox"/> | 3 | <input type="checkbox"/> | 4 | <input type="checkbox"/> | 5 |

5

Please indicate the intensity of Market Competition faced by your Business Unit:

Not
at all

To a great
extent

Our business unit has a number of major competitors

☐ 1

☐ 2

☐ 3

☐ 4

☐ 5

Our business unit frequently introduces new products

☐ 1

☐ 2

☐ 3

☐ 4

☐ 5

There is significant price manipulation

☐ 1

☐ 2

☐ 3

☐ 4

☐ 5

Technological change in the industry is very frequent

☐ 1

☐ 2

☐ 3

☐ 4

☐ 5

There is easy access to marketing channels

☐ 1

☐ 2

☐ 3

☐ 4

☐ 5

7

An Expert System refers to “computer programs that attempt to imitate the reasoning process and knowledge of experts in solving specific types of problems”.

Not
at all

To a great
extent

To what extent do you think Expert
System are used in your business unit?

☐ 1

☐ 2

☐ 3

☐ 4

☐ 5

8

Please indicate the extent to which the following statements reflect quality
management (QM) practices in your business unit.

Not
at all

To a great
extent

Quality data is available (on error rates, defects,
defect rates, scrap, etc)

☐ 1

☐ 2

☐ 3

☐ 4

☐ 5

Quality data is timely

☐ 1

☐ 2

☐ 3

☐ 4

☐ 5

Quality data is accurate and reliable

☐ 1

☐ 2

☐ 3

☐ 4

☐ 5

Quality data is used to manage quality

☐ 1

☐ 2

☐ 3

☐ 4

☐ 5

Suppliers are offered long term relationships

☐ 1

☐ 2

☐ 3

☐ 4

☐ 5

The number of suppliers has reduced since
implementation of quality management

☐ 1

☐ 2

☐ 3

☐ 4

☐ 5

Suppliers are selected based on their quality
rather than their price or delivery schedules

☐ 1

☐ 2

☐ 3

☐ 4

☐ 5

The supplier rating system is thorough

☐ 1

☐ 2

☐ 3

☐ 4

☐ 5

Suppliers are integrated into the product/service development process

☐1 ☐2 ☐3 ☐4 ☐5

Product/service design reviews are carried out before the product/service is produced and marketed

☐1 ☐2 ☐3 ☐4 ☐5

Departments involved in the product/service development process are coordinated

☐1 ☐2 ☐3 ☐4 ☐5

Quality of new products/services is emphasized in relation to cost or schedule objectives

☐1 ☐2 ☐3 ☐4 ☐5

Ease of production/implementation is considered in the product/service design process

☐1 ☐2 ☐3 ☐4 ☐5

Inspection, review, or checking of work is automated

☐1 ☐2 ☐3 ☐4 ☐5

Production schedule/work distribution is stable

☐1 ☐2 ☐3 ☐4 ☐5

The production process is automated

☐1 ☐2 ☐3 ☐4 ☐5

Production processes are designed to minimise the chances of employee errors

☐1 ☐2 ☐3 ☐4 ☐5

9

Please indicate the extent to which the following statements reflect practices in your business unit.

**Not
at all**

**To a great
extent**

Our business unit uses Electronic Data Interchange (EDI) with suppliers

☐1 ☐2 ☐3 ☐4 ☐5

Computer aided design (CAD) is used by the business unit

☐1 ☐2 ☐3 ☐4 ☐5

New design information is exchanged between departments

☐1 ☐2 ☐3 ☐4 ☐5

**Not
at all**

**To a great
extent**

Information Technology (IT) is used to detect the need for machine maintenance

☐1 ☐2 ☐3 ☐4 ☐5

IT is used to reduce process variance

☐1 ☐2 ☐3 ☐4 ☐5

IT is used to collect data about employees, customers and Suppliers

☐1 ☐2 ☐3 ☐4 ☐5

IT is used to collect data about production processes

☐1 ☐2 ☐3 ☐4 ☐5

Our business unit regularly conducts supplier quality audits

☐1 ☐2 ☐3 ☐4 ☐5

Our business unit always gives feedback on the performance of suppliers' products

☐1 ☐2 ☐3 ☐4 ☐5

Please indicate the extent to which the following statements reflect events in your business unit.

Not
at all

To a great
extent

Top management provides active support for quality management practices

☐1 ☐2 ☐3 ☐4 ☐5

Top management provides adequate resources to support the quality management implementation effort

☐1 ☐2 ☐3 ☐4 ☐5

Top management effectively communicates its support for quality management

☐1 ☐2 ☐3 ☐4 ☐5

Top management exercises its authority in support of quality management practices

☐1 ☐2 ☐3 ☐4 ☐5

Employees are encouraged to accept education and training in our business unit

☐1 ☐2 ☐3 ☐4 ☐5

Resources are available for employee education and training in our business unit

☐1 ☐2 ☐3 ☐4 ☐5

Most employees in our business unit are trained on how to use quality management methods(tools)

☐1 ☐2 ☐3 ☐4 ☐5

Quality awareness education is given to employees

☐1 ☐2 ☐3 ☐4 ☐5

Specific work-skills training is given to all employees

☐1 ☐2 ☐3 ☐4 ☐5

Employees are regarded as valuable, long-term resources worthy of receiving education and training throughout their career

☐1 ☐2 ☐3 ☐4 ☐5

Customers are involved in product/service design

☐1 ☐2 ☐3 ☐4 ☐5

Not
at all

To a great
extent

Customer satisfaction surveys are regularly conducted

☐1 ☐2 ☐3 ☐4 ☐5

The business unit actively seeks ways to improve customer satisfaction

☐1 ☐2 ☐3 ☐4 ☐5

There is interaction between business units and customers on establishing reliability and responsiveness standards

☐1 ☐2 ☐3 ☐4 ☐5

Customer requirements and expectations in relation to the

| | | | | | |
|--|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|
| company's products/services are used in developing strategic plans and goals of the business unit | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | <input type="checkbox"/> 3 | <input type="checkbox"/> 4 | <input type="checkbox"/> 5 |
| Formal benchmarking procedures have been established to assess customer satisfaction level against competitors | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | <input type="checkbox"/> 3 | <input type="checkbox"/> 4 | <input type="checkbox"/> 5 |
| Our business unit has cross-functional teams | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | <input type="checkbox"/> 3 | <input type="checkbox"/> 4 | <input type="checkbox"/> 5 |
| Our business unit has quality control Circles (QCC) | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | <input type="checkbox"/> 3 | <input type="checkbox"/> 4 | <input type="checkbox"/> 5 |
| Employees are actively involved in quality-related activities | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | <input type="checkbox"/> 3 | <input type="checkbox"/> 4 | <input type="checkbox"/> 5 |
| Our business unit implements suggestion activities extensively | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | <input type="checkbox"/> 3 | <input type="checkbox"/> 4 | <input type="checkbox"/> 5 |
| Most employees' suggestions are implemented after an evaluation | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | <input type="checkbox"/> 3 | <input type="checkbox"/> 4 | <input type="checkbox"/> 5 |
| Employees are very committed to the success of our business Unit | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | <input type="checkbox"/> 3 | <input type="checkbox"/> 4 | <input type="checkbox"/> 5 |
| Employees are encouraged to fix problems they find | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | <input type="checkbox"/> 3 | <input type="checkbox"/> 4 | <input type="checkbox"/> 5 |
| Reporting work problems is encouraged in our business unit | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | <input type="checkbox"/> 3 | <input type="checkbox"/> 4 | <input type="checkbox"/> 5 |
| Our business unit improves working conditions in order to recognise employee quality improvement efforts | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | <input type="checkbox"/> 3 | <input type="checkbox"/> 4 | <input type="checkbox"/> 5 |
| Our business unit has a salary promotion scheme for encouraging employee participation in quality improvement | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | <input type="checkbox"/> 3 | <input type="checkbox"/> 4 | <input type="checkbox"/> 5 |
| Position promotions are based on work quality in our company | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | <input type="checkbox"/> 3 | <input type="checkbox"/> 4 | <input type="checkbox"/> 5 |
| Excellent suggestions are financially rewarded | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | <input type="checkbox"/> 3 | <input type="checkbox"/> 4 | <input type="checkbox"/> 5 |
| Employees' rewards and penalties are clear | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | <input type="checkbox"/> 3 | <input type="checkbox"/> 4 | <input type="checkbox"/> 5 |
| Recognition and reward activities effectively stimulate employee commitment to quality improvement | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | <input type="checkbox"/> 3 | <input type="checkbox"/> 4 | <input type="checkbox"/> 5 |

11 Please rate the performance of your business unit compared to its competitors on each of the following over the last year.

| | <div> <div>Worse than competitors</div> <div>Better than competitors</div> </div> | | | | |
|--|---|----------------------------|----------------------------|----------------------------|----------------------------|
| Unit costs of manufacturing | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | <input type="checkbox"/> 3 | <input type="checkbox"/> 4 | <input type="checkbox"/> 5 |
| Fast delivery of products | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | <input type="checkbox"/> 3 | <input type="checkbox"/> 4 | <input type="checkbox"/> 5 |
| Flexibility in changing the volume of production | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | <input type="checkbox"/> 3 | <input type="checkbox"/> 4 | <input type="checkbox"/> 5 |
| Inventory Turnover | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | <input type="checkbox"/> 3 | <input type="checkbox"/> 4 | <input type="checkbox"/> 5 |
| Cycle Time (from receipt of raw materials to shipment) | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | <input type="checkbox"/> 3 | <input type="checkbox"/> 4 | <input type="checkbox"/> 5 |

Please indicate the extent to which your business unit has achieved the following outcomes during the last year:

| | Not at all | To a great extent | | | |
|---|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|
| Increased quality of products or services | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | <input type="checkbox"/> 3 | <input type="checkbox"/> 4 | <input type="checkbox"/> 5 |
| Increased productivity in the business unit | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | <input type="checkbox"/> 3 | <input type="checkbox"/> 4 | <input type="checkbox"/> 5 |
| Improved response to customer needs | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | <input type="checkbox"/> 3 | <input type="checkbox"/> 4 | <input type="checkbox"/> 5 |
| Improved employee morale | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | <input type="checkbox"/> 3 | <input type="checkbox"/> 4 | <input type="checkbox"/> 5 |
| Improved customer relationships | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | <input type="checkbox"/> 3 | <input type="checkbox"/> 4 | <input type="checkbox"/> 5 |
| Reductions in faulty products or services | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | <input type="checkbox"/> 3 | <input type="checkbox"/> 4 | <input type="checkbox"/> 5 |
| Increased Sales | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | <input type="checkbox"/> 3 | <input type="checkbox"/> 4 | <input type="checkbox"/> 5 |
| Reduced delivery lead time of finished products/services to customers | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | <input type="checkbox"/> 3 | <input type="checkbox"/> 4 | <input type="checkbox"/> 5 |
| Reduced customer complaints | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | <input type="checkbox"/> 3 | <input type="checkbox"/> 4 | <input type="checkbox"/> 5 |
| A decline in the number of warranty claims | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | <input type="checkbox"/> 3 | <input type="checkbox"/> 4 | <input type="checkbox"/> 5 |
| Reductions in work in progress | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | <input type="checkbox"/> 3 | <input type="checkbox"/> 4 | <input type="checkbox"/> 5 |
| Improved supplier relationships | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | <input type="checkbox"/> 3 | <input type="checkbox"/> 4 | <input type="checkbox"/> 5 |
| Improved employee management relationships | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | <input type="checkbox"/> 3 | <input type="checkbox"/> 4 | <input type="checkbox"/> 5 |

Thank you for taking the time to complete this survey. Your assistance in providing this information is very much appreciated.

Please return your completed survey in the enclosed self-addressed, stamped envelope to:

Farhana Ferdousi
C/O-Vice Chancellor's Bungalow
Bangladesh Open University,
Board Bazar, Gazipur-1705

Please return the enclosed self-addressed, stamped postcard separately in the mail. My receipt of the postcard will alert me that your survey has been returned and prevent a reminder being sent to you.

If you wish to enquire about the survey or if you need any assistance in completing the survey, please contact Farhana Ferdousi on +8801733954754 or farhana.ferdousi@students.mq.edu.au

Appendix B

MAIN INTERVIEW GUIDE

Can you please describe your organisation's current quality management practices? Are you using TQM?

What is the reason for introducing TQM?

Are your quality management practices ISO certified?

How has your emphasis on quality management practices changed over the last 10 years?

For each major change identified in (2):

What factors caused these changes?

What difficulties were encountered?

How were these difficulties overcome?

Would you say these change were successful? Why? Why not?

What processes were used to inform and familiarise the changes in quality management amongst the employees in the business unit of your organisation?

What internal organisational factors would you say have had the major influence on quality management practices within your organisation?

What external organisational factors would you say have had the major influence on quality management practices within your organisation?

What impact have quality management practices had on your organisations overall performance?

What is the key to the success of quality management within your organisation? What factors are important?

Appendix C

Interview Guide for V/P Garment Association, Director of Chamber of Commerce, and Director of the Board of Investment

How has the emphasis on quality management practices changed in Bangladesh over the last 10 years?

For each major change identified in (1)

What factors caused these changes?

What difficulties were encountered?

How were these difficulties overcome?

Would you say these change were successful? Why? Why not?

What processes were used to inform and familiarize the changes in quality management amongst organisation?

What external factors would you say have had the major influence on quality management practices within Bangladesh?

Appendix D

INTRODUCTION AND CONSENT LETTER



Department of Accounting and Corporate Governance

Faculty of Business and Economics

MACQUARIE UNIVERSITY NSW 2109

Phone: +61 (2)9850 8532

Fax: +61 (02) 9850 8497

Email: kevin.baird@mq.edu.au

Chief Investigator's / Supervisor's Name: Kevin Baird

Chief Investigator's / Supervisor's Title: Associate Professor

Participant Information and Consent Form

Name of Project: The adoption of quality management practices: A case study from Bangladeshi Ready Made Garment Sector

You are invited to participate in a study of "The adoption of quality management practices: A case study from Bangladeshi Ready Made Garment Sector". The purpose of the study is to extend the understanding of quality management practices by examining the institutional pressures that influence organisations to adopt TQM.

The study is being conducted by Farhana Ferdousi (Department of Accounting and Corporate Governance, Faculty of Business and Economics, Macquarie University, Tel:(061) 0470481167, Email:farhana.ferdousi@students.mq.edu.au) to meet the requirements for the PhD degree under the supervision of Associate Professor Kevin M. Baird (Tel:(0612)98508532, Email: kevin.baird@mq.edu.au), Dr. Rahat Munir (Tel: (0612) 9850 4765), Email: rahat.munir@mq.edu.au) and Dr. Sophia Su (Tel: (0612) 9850 8454), Email: Sophia.su@mq.edu.au) from the department of Accounting and Corporate Governance, Macquarie University. The local contact for this project is M A Mannan (Tel:(8802) 01755593377).

If you decide to participate, you will be asked to participate in an interview to describe the quality management practices of your organisation and explain what pressures influence your organisation to adopt TQM over time. The interview will be conducted in March, 2014 and the duration of the interview meeting will be about 1 hour. The interview will take place at the factory situated in Gazipur. A follow-up interview may also be required to clarify any information or explanation provided in the first interview. The interview will be audio recorded with your permission and the interviewer will also take notes during the interview.

Any information or personal details gathered in the course of the study are confidential, except as required by law. No individual will be identified in any publication of the results. All data provided for this study will be stored at a secure place by Farhana Ferdousi and no person other than the supervisor's of this study will have access to the data. Since this study is only for academic purpose there will be no payment of money or other remuneration to participants.

The findings of the study may be published in a referred academic journal and we assure you and your organisation that the publication will not include any information identifying individual participants or the institution. If you would like to obtain a copy of the findings of the study please contact Associate Professor Kevin Baird on the email address provided above.

Participation in this study is entirely voluntary: you are not obliged to participate and if you decide to participate, you are free to withdraw at any time without having to give a reason and without consequence.

I, _____ have read and understand the information above and any questions I have asked have been answered to my satisfaction. I agree to participate in this research, knowing that I can withdraw from further participation in the research at any time without consequence. I have been given a copy of this form to keep.

Participant's Name: _____

(Block letters)

Participant's Signature: _____ Date: _____

Investigator's Name: _____

(Block letters)

Investigator's Signature: _____ Date: _____

The ethical aspects of this study have been approved by the Macquarie University Human Research Ethics Committee. If you have any complaints or reservations about any ethical aspect of your participation in this research, you may contact the Committee through the Director, Research Ethics (telephone (02) 9850 7854; email ethics@mq.edu.au). Any complaint you make will be treated in confidence and investigated, and you will be informed of the outcome.

(INVESTIGATOR'S [OR PARTICIPANT'S] COPY)

Appendix E

FOLLOW-UP CONSENT LETTER



Department of Accounting and Corporate Governance

Faculty of Business and Economics

MACQUARIE UNIVERSITY NSW 2109

Phone: +61 (2)9850 8532

Fax: +61 (02) 9850 8497

Email: kevin.baird@mq.edu.au

Chief Investigator's / Supervisor's Name: Kevin Baird

Chief Investigator's / Supervisor's Title: Associate Professor

Participant Information and Consent Form

Name of Project: An examination of the factors influencing the adoption and success of quality management practices.

You are invited to participate in a study of "An examination of the factors influencing the adoption and success of quality management practices". The purpose of the study is to extend the understanding of quality management practices by examining the adoption of TQM and its association with competitive advantage. Further the study will extend knowledge of TQM success factors from the perspective of a developing economy.

The study is being conducted by Farhana Ferdousi (Department of Accounting and Corporate Governance, Faculty of Business and Economics, Macquarie University, Tel:(061) 0470481167, Email:farhana.ferdousi@students.mq.edu.au) to meet the requirements for the PhD degree under the supervision of Associate Professor Kevin Baird (Tel:(0612) 9850 8532, Email: kevin.baird@mq.edu.au), Dr. Rahat Munir (Tel:(0612) 9850 4765), Email: rahat.munir@mq.edu.au) and Dr. Sophia Su (Tel:(0612) 9850 8454), Email: sophia.su@mq.edu.au) from the department of Accounting and Corporate Governance, Macquarie University.

Participation in this study is entirely voluntary. You are not obliged to participate. Return of the questionnaire will be regarded as consent to use the information for research purposes. If you decide to participate, you will be required to complete the questions on the attached questionnaire. The questionnaire should take approximately fifteen minutes to complete.

Any information or personal details gathered in the course of the study are confidential, and only the researchers will have access to the data. The results of the study will only be published in aggregate, unless personalised feedback is requested, and no individual will be identified in any publication of the results. While a postcard is provided, the purpose of this is to inform us that you have completed the questionnaire, thereby preventing a follow up being sent. If you would like a

copy of the results of the study please indicate this on the postcard and if you wish to receive personalised feedback for your organisation please indicate so on the questionnaire.

The ethical aspects of this study have been approved by the Macquarie University Human Research Ethics Committee. If you have any complaints or reservations about any ethical aspect of your participation in this research, you may contact the Committee through the Director, Research Ethics (telephone (02) 9850 7854; email ethics@mq.edu.au). Any complaint you make will be treated in confidence and investigated, and you will be informed of the outcome.

Appendix F

FIRST ETHICS APPROVAL

1/24/14

Mrs Yanru Ouyang<yanru.ouyang@mq.edu.au>

Dear Mr Baird,

Re: 'The adoption of quality management practices in a developing economy.'

Reference No.: 5201300904

Thank you for your recent correspondence. Your response has addressed the issues raised by the Faculty of Business & Economics Human Research Ethics Sub Committee. Approval of the above application is granted, effective "24/01/2014". This email constitutes ethical approval only.

This research meets the requirements of the National Statement on Ethical Conduct in Human Research (2007). The National Statement is available at the following web site:

http://www.nhmrc.gov.au/_files_nhmrc/publications/attachments/e72.pdf.

The following personnel are authorised to conduct this research:

Dr Rahat Munir

Mr Kevin Baird

Mrs Farhana Ferdousi

Sophia Su

NB. STUDENTS: IT IS YOUR RESPONSIBILITY TO KEEP A COPY OF THIS APPROVAL EMAIL TO SUBMIT WITH YOUR THESIS.

Please note the following standard requirements of approval:

1. The approval of this project is conditional upon your continuing

compliance with the National Statement on Ethical Conduct in Human Research (2007).

2. Approval will be for a period of five (5) years subject to the provision of annual reports.

Progress Report 1 Due: 24 Jan. 2015

Progress Report 2 Due: 24 Jan. 2016

Progress Report 3 Due: 24 Jan. 2017

Progress Report 4 Due: 24 Jan. 2018

Final Report Due: 24 Jan. 2019

NB. If you complete the work earlier than you had planned you must submit a Final Report as soon as the work is completed. If the project has been discontinued or not commenced for any reason, you are also required to submit a Final Report for the project.

Progress reports and Final Reports are available at the following website:

http://www.research.mq.edu.au/for/researchers/how_to_obtain_ethics_approval/human_research_ethics/forms

3. If the project has run for more than five (5) years you cannot renew approval for the project. You will need to complete and submit a Final Report and submit a new application for the project. (The five year limit on renewal of approvals allows the Committee to fully re-review research in an environment where legislation, guidelines and requirements are continually changing, for example, new child protection and privacy laws).

4. All amendments to the project must be reviewed and approved by the Committee before implementation. Please complete and submit a Request for Amendment Form available at the following website:

http://www.research.mq.edu.au/for/researchers/how_to_obtain_ethics_approval/human_research_ethics/forms

5. Please notify the Committee immediately in the event of any adverse effects on participants or of any unforeseen events that affect the continued ethical acceptability of the project.

6. At all times you are responsible for the ethical conduct of your research in accordance with the guidelines established by the University. This information is available at the following websites:

<http://www.mq.edu.au/policy/>

http://www.research.mq.edu.au/for/researchers/how_to_obtain_ethics_approval/human_research_ethics/policy

If you will be applying for or have applied for internal or external funding for the above project it is your responsibility to provide the Macquarie University's Research Grants Management Assistant with a copy of this email as soon as possible. Internal and External funding agencies will not be informed that you have approval for your project and funds will not be released until the Research Grants Management Assistant has received a copy of this email.

If you need to provide a hard copy letter of approval to an external organisation as evidence that you have approval, please do not hesitate to contact the FBE Ethics Committee Secretariat, via fbe-ethics@mq.edu.au or 9850 4826.

Please retain a copy of this email as this is your official notification of ethics approval.

Yours sincerely,

Parmod Chand

Chair, Faculty of Business and Economics Ethics Sub-Committee

Faculty of Business and Economics

Level 7, E4A Building

Macquarie University

NSW 2109 Australia

T: +61 2 9850 4826

F: +61 2 9850 6140

www.businessandeconomics.mq.edu.au/

Appendix G

SECOND ETHICS APPROVAL

Mrs Yanru Ouyang <fbe-ethics@mq.edu.au> 11/17/14

Dear Mr Baird,

Re: 'An examination of the factors influencing the adoption and success of quality management.'

Reference No.: 5201401017

Thank you for your recent correspondence. Your response has addressed the issues raised by the Faculty of Business & Economics Human Research Ethics Sub Committee. Approval of the above application is granted, effective "14/11/2014". This email constitutes ethical approval only.

This research meets the requirements of the National Statement on Ethical Conduct in Human Research (2007). The National Statement is available at the following web site:

http://www.nhmrc.gov.au/files_nhmrc/publications/attachments/e72.pdf.

The following personnel are authorised to conduct this research:

Miss Sophia Su
Mr Kevin Baird
Mr Rahat Munir
Mrs Farhana Ferdousi

NB. STUDENTS: IT IS YOUR RESPONSIBILITY TO KEEP A COPY OF THIS APPROVAL

EMAIL TO SUBMIT WITH YOUR THESIS.

Please note the following standard requirements of approval:

1. The approval of this project is conditional upon your continuing compliance with the National Statement on Ethical Conduct in Human Research (2007).

2. Approval will be for a period of five (5) years subject to the provision of annual reports.

Progress Report 1 Due: 14th Nov 2015

Progress Report 2 Due: 14th Nov 2016

Progress Report 3 Due: 14th Nov 2017

Progress Report 4 Due: 14th Nov 2018

Final Report Due: 14th Nov 2019

NB. If you complete the work earlier than you had planned you must submit a Final Report as soon as the work is completed. If the project has been discontinued or not commenced for any reason, you are also required to submit a Final Report for the project. Progress reports and Final Reports are available at the following website:

http://www.research.mq.edu.au/for/researchers/how_to_obtain_ethics_approval/human_research_ethics/forms

3. If the project has run for more than five (5) years you cannot renew approval for the project. You will need to complete and submit a Final Report and submit a new application for the project. (The five year limit on renewal of approvals allows the Committee to fully re-review research in an environment where legislation, guidelines and requirements are continually changing, for example, new child protection and privacy laws).

4. All amendments to the project must be reviewed and approved by the Committee before implementation. Please complete and submit a Request for Amendment Form available at the following website:

http://www.research.mq.edu.au/for/researchers/how_to_obtain_ethics_approval/human_research_ethics/forms

5. Please notify the Committee immediately in the event of any adverse effects on participants or of any unforeseen events that affect the continued ethical acceptability of the project.

6. At all times you are responsible for the ethical conduct of your research in accordance with the guidelines established by the University.

This information is available at the following websites:

<http://www.mq.edu.au/policy/>

http://www.research.mq.edu.au/for/researchers/how_to_obtain_ethics_approval/human_research_ethics/policy

If you will be applying for or have applied for internal or external funding for the above project it is your responsibility to provide the Macquarie University's Research Grants Management Assistant with a copy of this email as soon as possible. Internal and External funding agencies will not be informed that you have approval for your project and funds will not be released until the Research Grants Management Assistant has received a copy of this email.

If you need to provide a hard copy letter of approval to an external organisation as evidence that you have approval, please do not hesitate to contact the FBE Ethics Committee Secretariat, via fbe-ethics@mq.edu.au or 9850 4826.

Please retain a copy of this email as this is your official notification of ethics approval.

Yours sincerely,

Parmod Chand

Chair, Faculty of Business and Economics Ethics Sub-Committee

Faculty of Business and Economics

Level 7, E4A Building

Macquarie University

NSW 2109 Australia

T: [+61 2 9850 4826](tel:+61298504826)

F: [+61 2 9850 6140](tel:+61298506140)

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